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Part II

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Mine Safety and Health Administration

Metal and Nonmetal Mine Safety; Advisory Standards Revoked or Revised and Made Mandatory

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Parts 55, 56, and 57

Metal and Nonmental Mine Safety; Advisory Standards Revoked or Revised and Made Mandatory

AGENCY: Mine Safety and Health Administration, Department of Labor.

ACTION: Final rule.

SUMMARY: This final rule revokes or revises and makes mandatory existing advisory safety and health standards applicable to metal and nonmental mines by amending 30 CFR Parts 55, 56, and 57. This rulemaking is required under section 301(b)(2) of the Federal Mine Safety and Health Amendments Act of 1977. The new mandatory standards cover: ground control; air quality and ventilation; explosives; drilling; file prevention and control; rotary jet piercing; loading, hauling, dumping; aerial tramways; travelways and escapeways; electricity; compressed air and boilers; use of equipment; material storage and handling; safety programs; hoisting; and gassy mines. The conversion of the advisory standards to enforceable mandatory standards will afford miners in metal and nonmental mines and mills additional protection from injuries and occupational diseases. For the convenience of the mining community, current versions of Parts 55, 56, and 57 (including sections amended by this rule) will be republished by MSHA as a separate document.

EFFECTIVE DATE: These standards shall be effective on November 15, 1979, except standards 55/56/57.4–5 [1] (tank storage of combustible and flammable liquids), 55/56/57.4–25 (fire hydrants), 55/56/57.4–39A (flammable and combustible liquids and flammable materials stored in buildings or rooms), and 57.4–61A (ventilation doors) which shall be effective February 13, 1980; and standard 57.4–57 (trailing cables) which shall be effective November 12, 1980.

FOR FURTHER INFORMATION CONTACT: Frank Delimba, Chief, Division of Safety, Metal and Nonmetal Mine Safety and Health, Mine Safety and Health Administration, Room 717, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203, (703) 235–8646.

SUPPLEMENTARY INFORMATION:

Background

On November 9, 1977, Congress enacted the Federal Mine Safety and Health Amendments Act of 1977 [the "amendments Act"], Pub. L. 95–164, 91 Stat. 1290 *et seq.*, which amended the Federal Coal Mine Health and Safety Act of 1969, Pub. L. 91–173, 83 Stat. 742, 30 U.S.C. 801 *et seq.* (1976 ed.), and repealed the Federal Metal and Nonmetallic Mine Safety Act of 1966 [the "Metal Act"], Pub. L. 89–577, 80 Stat. 772, 30 U.S.C. 721 *et seq.* (1976 ed.). The resulting law, the Federal Mine Safety and Health Act of 1977 [the "Mine Act"], 30 U.S.C. 801 *et seq.* (1976 ed. and Supp. I (1977)), established for the first time a single safety and health statute applicable to all mining.

Section 301(b)(2) of the Amendments Act, 91 Stat. 1317, 30 U.S.C. 961(b)(2) (Supp. I 1977)), directed the Secretary of Labor (Secretary) to review all of the existing advisory safety and health standards which had been promulgated under the Metal Act, and to determine which of those standards should be promulgated as new mandatory standards.

As required by the statute, the Secretary appointed an Advisory Committee which was formed on January 5, 1978 and consisted of three representatives each from labor and management, and seven public members with no economic interest in the mining industry. It was formally chartered under section 102 of the Mine Act, 91 Stat. 1295, 30 U.S.C. 812 (Supp. I (1977)), and under the Federal Advisory Committee Act, Pub. L. 92–463, 86 Stat. 770, as amended by Pub. L. 94–409, 90 Stat. 1247, 5 U.S.C., Appendix I.

After publishing notices of meetings in the **Federal Register** and making copies of the agenda available to the public, the Advisory Committee held public meetings in Washington, D.C. on March 6–10, 1978 (43 FR 7071); Tucson, Arizona on April 4–7, 1978 (43 FR 11278); Arlington, Virginia on May 1–5, 1978, (43 FR 15805); and Washington, D.C. on May 22–25, 1978, (43 FR 19477).

Based on its review of the 229 existing advisory standards in 30 CFR Parts 55, 56 and 57, the Advisory Committee recommended that 68 advisory standards be revoked and that 161 standards be revised and made mandatory. The Advisory Committee submitted its final recommendations to the Secretary on July 5, 1978.

On September 12, 1978, all of the recommendations of the Advisory Committee were published by the Secretary in Part VIII of the **Federal Register** (43 FR 40766) as proposed rules amending 30 CFR Parts 55, 56 and 57.

Interested persons were originally given until October 9, 1978, to submit written comments and data. The comment period was extended to October 17, 1978 (43 FR 43475), and further extended to November 3, 1978 (43 FR 47213). In response to these notices, the Mine Safety and Health Administration (MSHA) received over 100 written comments from a wide variety of individuals and organizations, including miners and their representatives, large and small mine operators, contractors, trade associations, equipment manufacturers, professional groups and other interested individuals and organizations. Most of the commenters addressed nearly all aspects of the proposed rule.

When the Amendments Act was enacted (November 9, 1977), certain formal rulemaking proceedings related to safety and health were pending before the Secretary of the Interior. Section 301(c)(3) of the Amendments Act, 91 Stat. 1318, 30 U.S.C. 961(c)(3) (Supp. I (1977)), transferred rulemaking responsibilities to the Secretary and authorized the completion of rulemaking proceedings which had been initiated by the Secretary of the Interior. Two such proceedings begun under section 6 of the Metal Act involved several advisory safety and health standards and resulted in formal recommendations to the Secretary by Administrative Law Judges Harvey C. Sweitzer and George A. Koutras on November 16, 1977 and February 10, 1978 (corrected March 13, 1978), respectively. The advisory standards considered by the judges were also submitted to the Advisory Committee since final action had not yet been taken. The recommended decisions of the Administrative Law Judges have been adopted with modifications by the Secretary, and were published as final rules in the **Federal Register** on August 17, 1979 (44 FR 48490) and on June 1, 1979 (44 FR 31908).

In addition, a third rulemaking also was pending at the time the Amendments Act was enacted. In this proceeding, several new and revised mandatory safety and health standards were proposed (43 FR 40766, January 28, 1977), many of which were based on existing advisory standards. Since no hearing had been held and no final action had been taken on these proposed standards, the advisory standards were included in the comprehensive review made by the Advisory Committee and the proposed

[1] Standards uniformly applicable to 30 CFR Parts 55, 56, 57 are referred to in this document as "55/56/57." Standards applicable to open pit mines are published in Part 55; standards applicable to sand, gravel and crushed stone operations are published in Part 56; and standards applicable to underground mines (and their surface operations) are published in Part 57.

rulemaking of September 12, 1978. Therefore, final determinations have been made on these new mandatory standards in this rulemaking under section 301(b) of the Amendments Act, 91 Stat. 1317, 30 U.S.C. 961(b) (Supp. I (1977)), in order to achieve the congressional goal of promptly upgrading advisory standards, where appropriate, to mandatory standards.

The following former advisory standards have been affected:

Administrative Law Judge Sweitzer—55/56/57.6–7 (storage of explosive materials); 55/56/57.6–9 (storage of explosives); 55/56/57.6–10 (stacking of explosives); 55/56/57.6–48 (transportation of explosive materials); 55/56/57.6–55 (transportation of explosive materials); 55/56/57.6–98 (connection of detonators to primers and detonating cord to explosives); 55/56/57.6–106 (examination for undetonated explosive materials); 55/56/57.6–109 (damaged safety fuse, igniter cord, and detonating cord); 55/56/57.6–118 (timing of safety fuse); 55/56/57.6–121 (electrical testing of blasting circuits); 55/56/57.6–132 (delay connectors); 55/56/57.6–138 (premature ignition in drilled or sprung holes, proposed as 55/56/57.6–142, originally 55/56/57.6–169); 55/56/57.6–139 (re-entering blast areas, originally 55/56/57.6–176); 55/56/57.6–140 (protection from extraneous electricity, originally 55/56/57.6–180); 55/56/57.6–167 (damaged detonating cord).

Administrative Law Judge Koutras—55/56/57.9–1 (safety defects); 55/56/57.9–34 (haulage equipment); 55/56/57.9–104 (warning devices); 55/56/57.19–78 (hoisting buckets); 55/56/57.20–8 (sanitary facilities); 55/56/57.21–21 (gassy mines—continuous operation of main fans).

January 28, 1977 proposed rule—57.3–58 (rock bolts, proposed as 55/56/57.3–52, originally 57.3–32); 57.4–66 (automatically-actuated fire suppression systems on conveyor belt drives); 55/56/57.19–12 (size and pitch of grooved drums); 55/56/57.19–36 (height of head frames); 55/56/57.19–37 (fleet angles); 55/56/57.19–39 (drum and sheave tread diameters); 55/56/57.19–67 (supervision of man trips); 55/56/57.19–72 (use of cages and skips); 55/56/57.19–74 (shaft conveyance restrictions); 55/56/57.19–81 (conveyances not in use); 55/56/57.19–91 (signals to hoist operator); 55/56/57.19–93 (standard hoisting signals); 55/56/57.19–124 (rope cut at conveyance end); 55/56/57.19–125 (rope cut at drum end); 55/56/57.19–126 (rope calipering); 55/56/57.19–130 (conveyance testing before hoisting personnel); 55/56/57.19–131 (inspection of conveyance connection); 55/56/57.19–132 (inspection of safety catches); 55/56/57.21–65 (examinations and tests for hazardous conditions).

II. Discussion and Summary of the Final Rule

A. *General Discussion.* the provisions of the new Mine Act signaled important changes in the types of protections afforded to miners in the metal and nonmetal mining industries. The congressional endorsement of mandatory safety and health standards and the statutory changes designed to improve the rulemaking process reflect a strong belief that the development of timely, enforceable standards is one of the most effective ways to improve safety and health conditions in the Nation's mines. Congress viewed the conversion of the advisory standards to mandatory standards as an important step in achieving these improved conditions.

The Advisory Committee appointed by the Secretary to initiate the review of the advisory standards was faced with the enormous task of reviewing a wide range of health and safety issues in metal and nonmetal mining, many of which were both longstanding and difficult to resolve. In addition, the language and intent of many of the standards were vague or overly broad.

Under the Metal Act, a large number of safety and health standards covering metal and nonmetal mines were issued only as advisory guidelines or recommended work practices. The Advisory Committee fully addressed many of the complex issues related to improving protection for miners through mandatory, enforceable safety and health standards. Its final recommendations, which were published as the proposed rule, were extremely important in advancing the rulemaking effort.

The public comments, which were received from virtually all segments of the mining community, raised many significant new issues which required full and careful consideration. Other considerations also made deliberate and intensive review of the proposed rule imperative. MSHA is committed to ensuring that regulations are written plainly and simply; that they are developed only in response to significant safety and health concerns; and that they are formulated in a way which minimizes the burdens imposed. These goals have been reinforced by several Adminisration initiatives to discourage unnecessary regulation, and to encourage public participation in the regulatory process and agency responsiveness to the affected public. In order to assure that these considerations would be fully addressed, it became apparent to MSHA that it would not be in the best interests of the mining community to adhere strictly to the 30 day statutory timetable for the publication of a final rule.

The comments on the proposed rule pointed out a substantial number of provisions which: were unclear or ambiguous; would not have allowed sufficient flexibility of application for various types of operations; were overly detailed or confusing; and were not significantly related to safety or health. Other comments were directed to such issues as: the extent of proposed changes to particular advisory standards; the need for alterations to mine equipment, facilities or practices which might justify a delay in the effective date of certain standards; the economic impact of certain standards; recordkeeping and reporting requirements; and the need in some instances for additional rulemaking.

MSHA also realized that the impact of these new rules upon many segments of the metal and nonmetal mining industries would be significant. Therefore, MSHA has tried to assure that these rules do not impose unnecessary burdens upon the industry and that their cumulative impact is fully justified in terms of improved safety and health conditions.

In its attempts to be responsive to the expressed needs and concerns of the mining community, MSHA has made numerous changes: to eliminate certain types of recordkeeping, as well as requirements that do not affect safety; to alter requirements to meet current states of the art in equipment and machinery; to simplify and clarify language; to provide delayed effective dates; and to grandfather certain requirements. All of the 68 advisory standards which were proposed to be revoked on September 12, 1978 have been revoked in the final rule. MSHA's review also has led to the revocation of 21 additional standards. These standards have been revoked primarily to: avoid unnecessary duplication with existing standards; eliminate those standards that are not directly related to health or safety; or undertake further studies and evaluations of specific hazards and protective measures.

MSHA believes that it has achieved the congressional goal of strengthening the safety and health protection afforded metal and nonmetal miners by integrating this new set of mandatory standards into the existing body of enforceable standards. Every effort has been made to be responsive to the comments without compromising the

safety and health of the Nation's metal and nonmetal miners.

This rulemaking is a major step towards providing a comprehensive framework for reducing accidents and occupational diseases among the Nation's metal and nonmetal mine workforce through the development of safety and health standards. In conjunction with its long-term standards development policy and Presidential directives, such as Executive Order 12044, MSHA intends to conduct a comprehensive study of all the health and safety standards contained in 30 CFR Parts 55, 56, and 57 in order to assess their continued applicability and effectiveness. In addition, the agency will evaluate changes in technology, economic conditions and other factors which affect the applicability of its existing standards, and will revise them accordingly. An integral part of MSHA's review will be the development of new or revised health and safety standards under section 101 of the Mine Act, 91 Stat. 1291.30 USC 811 (Supp. I (1977)).

Due to the large number of changes in the agency's standards as a result of this rule and related rulemakings, 30 CFR Parts 55, 56, and 57 will be updated and republished by MSHA as a separate document for the convenience of the mining community.

B. Discussion and Summary of Final Standards

Section 3—Ground Control

§ *57.3–29*

The proposed standard stated that shaft pillars must have sufficient strength to protect operating shafts. A comment questioned whether the standard required shaft pillars. MSHA recognizes that leaving a solid block of ore around the shaft is not the only means of protecting the shaft against earth movement. Among other means of maintaining the integrity of the shaft are reinforced concrete, steel, or timber. In response to the comment, and to clarify that the standard is not intended to require the use of shaft pillars, the phrase "or other support systems" has been added after "shaft pillars."

§ *57.3–58*

It was proposed to add a new mandatory standard to Parts 55, 56 and 57 providing for the installation of rock bolts as soon as the area is exposed. The original advisory standard (57.3–32) was applicable to underground mines only. Therefore, MSHA has promulgated the final standard only in Part 57 at this time. No substantive comments were received, and the language of the proposed standard has been changed for editorial purposes. The final standard provides that when rock bolts are needed for ground support, they shall be installed as soon as practicable after an area is exposed.

Section 4–Fire Prevention and Control

§§ *55/56/57.4–3*

The proposed standard would have required areas within 25 feet of all flammable and combustible liquid storage tanks and electric substations to be kept free of dry grass, weeds and other combustible materials. Comments suggested that this standard should not apply to buried storage tanks. Since buried tanks are protected by the earth around them, the standard has been modified to apply to "unburied" tanks used for the storage of flammable or combustible liquids. Editorial changes have been made in the standard for clarity.

§§ *55/56/57.4–5*

The proposal stated that fixed unburied flammable and combustible liquid storage tanks shall be mounted securely on firm foundations and that piping shall be provided with connections or fittings where necessary to prevent leakage caused by tank settling. Several comments questioned whether the requirement for "firm foundations" would eliminate the use of "floating foundations." A properly constructed floating foundation is acceptable to MSHA as a firm foundation. Additional comments stated that the portion of the standard requiring flexible connections or special fittings to prevent leaks from tank settling was unnecessary. Leaks which can result from tank settling must be prevented to assure the safety of personnel. Pipe flexibility can be provided with negligible cost: for example, by a swing joint. Editorial changes have been made in the standard for clarity, and a delayed effective date has been added to provide operators with additional time to comply with the requirements of the standard.

§§ *55/56/57.4–7*

The proposal stated that means must be provided to remove or control spilled flammable or combustible liquids. Comments requested clarification. Channels or impoundments or a means of draining the spill to a safe location would satisfy the requirements in the event of a large spill. Absorbent material would be a means of controlling a small spill. The words "confine" and "drain away" have been deleted in the final standard to avoid redundancy.

§§ *55/56/57.4–12*

MSHA has renumbered this standard, which was proposed standard 55/56/57.4–27B, by using "reserved" number 55/56/57.4–12. Proposed standard 55/56/57.4–27B stated that all flammable and combustible liquids must be disposed of in a manner which prevents accumulation where they can create a fire hazard to personnel. No comments were received on this standard and it is promulgated with editorial changes.

§§ *55/56/57.4–13*

The proposal stated that in areas where fire is a hazard, materials subject to spontaneous combustion must be placed in covered metal containers. MSHA disagrees with a suggestion that the standard apply only to oily waste and oily rags because this modification would unreasonably restrict the standard and expose miners to fire hazards from other materials. The standard is promulgated with editorial changes for clarity.

§§ *55/56/57.4–16*

The proposal stated that drip pans must be provided to catch leakage or spillage when oil or combustible or flammable liquids are dispensed in a place or manner which could create a hazard, and that floor areas where drip pans are used must be kept clean. A comment suggested deletion of the word "oil" from the final standard. MSHA agrees that the word is redundant and it is deleted. Other comments stated that it is impossible to always keep floor areas clean where drip pans are used. Some spills are inevitable and, consequently, the standard has been revised to require that floor areas be cleaned immediately after spills.

§§ *55/56/57.4–25*

The proposal stated that fire hydrants shall have uniform fittings and that wrenches or keys to open the valves shall be readily available. In addition, where necessary, adapters capable of connecting hydrant fittings to the hose equipment of local fire departments must be readily available. Several comments questioned whether the standard was intended to require fire hydrants. The standard is not intended to require fire hydrants, but is intended to be applied when fire hydrants are used. To prevent misinterpretation, the phrase "whenever fire hydrants are used" is included in the final standard. Several comments suggested that the standard only apply to surface

installations. The difficulties encountered in underground fire fighting justify the application of this standard to underground installations. A delayed effective date has been added to provide operators with additional time to comply with the requirements of the standard.

§§ *55/56/57.4–26*

The proposal stated that certain equipment used for fire fighting purposes must be inspected every three months and tested annually. A comment stated that inspections every six months would be adequate. However, the three month inspection schedule and annual testing requirements are retained in the final rule. These requirements conform to the recommendations of recognized fire protection codes. Several comments questioned whether MSHA's requirements supersede those of state, county, or local governments. Section 506 of the Mine Act provides for compliance with the most stringent of the applicable standards, whether federal, state, county, or local. Consequently, when the federal standard is more stringent than the corresponding state, county, or local standard, the federal standard shall be applied.

§§ *55/56/57.4–27*

Proposed standard 55/56/57.4–27A, which is a revision of advisory standard 55/56/57.4–39, has been renumbered 55/56/57.4–27. The proposed standard stated that no self-propelled mobile equipment shall be operated unless a suitable fire extinguisher is accessible to the operator. Several comments requested clarification of the term "suitable". Because of the many different types and sizes of mining equipment covered by the standard, the term "suitable" (defined in 30 CFR 55/56/57.2, "Definitions") is used to provide operators with the flexibility needed to choose appropriate fire extinguishers. Additional comments questioned if "accessible to the operator" required that the fire extinguisher be located in the equipment's cab. The fire extinguisher need not be located inside the cab provided it is "readily accessible" to the equipment operator. The word "readily" has been included in the final standard to clarify that the equipment operator must be capable of reaching the fire extinguisher quickly and without difficulty in the event of a fire. A comment questioned whether the standard required that fire extinguishers be placed inside staff automobiles. The standard does not require that such automobiles be equipped with fire extinguishers.

§§ *55/56/57.4–39A*

Proposed standard 55/56/57.4–39A, based on advisory standard 55/56/57.4–6, stated that buildings or rooms in which oil, grease, flammable liquids, or similar flammable materials are stored shall be well-ventilated and of one-hour fire-resistance construction. In response to comments requesting that the standard exempt structures which are not located near working areas, the clause "which are within 100 feet of where miners normally work" has been added. This change conforms to the provisions of recognized fire protection codes. Several comments requested definitions for "flammable" and "combustible." These terms are defined in 30 CFR 55/56/57.2, "Definitions." Additional comments requested clarification for the phrase "one-hour fire-resistance construction." In response to these comments a clarifying change has been made in the final standard. A delayed effective date has been added to the standard to provide operators with adequate time for compliance.

§§ *55/56/57.4–39B*

Proposed standard 55/56/57.4–39B, a revision of advisory standard 55/56/57.4–31, stated that emergency fire fighting plans and training, in combination with suitable evacuation and rescue plans and equipment, must be established. In addition, plans must be coordinated with available professional fire fighting organizations and drills must be held at least twice a year. Several comments stated that fire fighting training is covered by 30 CFR Part 48, "Health and Safety Training and Retraining of Miners," issued as Part IV of the **Federal Register** on October 13, 1978, 43 FR 47454–47468 (Training Regulations). MSHA agrees with these comments and is removing the training requirement from the standard. Certain aspects of this standard are also the subject of MSHA's proposed regulations on mine rescue teams (proposed as 30 CFR Part 49 on January 5, 1979, 44 FR 1536). In developing the final mine rescue team standards, MSHA will take into consideration any areas of potential overlap or conflict.

The word "professional" is deleted from the phrase "available * * * fire fighting organizations" in response to comments that many operators in rural areas use volunteer fire fighting forces. Contrary to comments, MSHA believes that coordination with available fire fighting organizations is essential since these organizations may be called upon to assist in emergencies and to fight mine fires.

§§ *55/56/57.4–41*

The proposal would have required that every building or structure designed for human occupancy be provided with exits sufficient to permit the prompt escape of occupants in case of fire or other emergency. The proposal also contained general requirements for the design of exits. In response to several comments which stated that the proposed standard was vague and ambiguous, changes have been made. The phrase "designed for human occupancy" has been replaced by "where persons normally work" and the phrase "or other emergency" has been deleted since this standard addresses fire emergencies only. The second sentence, relating to the design of exits and other safeguards, has been deleted to avoid confusion. The final standard requires that every building or structure where persons normally work be provided with exits sufficient to permit the prompt escape of persons in case of fire.

§ *57.4–42*

MSHA has consolidated proposed standards 57.4–42 and 57.4–44 to coordinate the requirements of these standards. Proposed standard 57.4–42 stated that the excess of one day's supply of combustible mine supplies could not be stored within 100 feet of mine openings or mine ventilation fans. Proposed standard 57.4–44 stated that areas within 25 feet of mine openings must be kept free of combustible materials, except for installed wiring and materials in use for ground and track support. New mandatory standard 57.4–42 (a) and (b) places restrictions upon the materials allowed within prescribed distances of main and booster fans and mine openings.

Paragraph 57.4–42(a) states that no combustible materials are permitted within 25 feet of mine openings, and no combustible materials, except for one day's requirements of mine materials and supplies, are permitted within 100 feet of main and booster fans and mine openings.

Paragraph 57.4–42(b) clarifies the meaning of the phrase "combustible materials" (only as the term is used in this standard) by excluding installed wiring, ground support and track support, headframes, materials in transit, and buildings or other structures in compliance with new mandatory standard 57.4–43. MSHA recognizes that these combustible materials may

necessarily be located near fans and mine openings. The phrase "materials in transit" was added in the final standard to permit the transportation of materials into, and out of, mines. The exclusion for buildings and other structures in compliance with standard 57.4–43 was added in response to a comment suggesting that structures complying with the fire protection requirements of standard 57.4–43 should be allowed within the areas designated by standard 57.4–42.

The phrase "main and booster fans" in paragraph (a) was substituted for the proposed phrase "mine ventilation fans" to clarify those fans to which the standard applies. Both "booster fans" and "main fans" are defined in 30 CFR 57.2, "Definitions." In order to further clarify the standard, the proposed phrase "one day's supply" has been changed to "one day's requirements of mine materials or supplies." This determination is to be made by each particular mine's usage.

MSHA points out that the 25 foot restriction in new mandatory standard 57.4–42 applies to mine openings only, while the 100-foot restriction applies to both fans and mine openings. The restrictions placed upon materials permitted within 25 feet of main and booster fans is covered by standard 57.5–18B. Standard 57.5–18B, promulgated June 1, 1979 (44 FR 31917), requires that areas within 25 feet of main and booster fans be kept free of combustible materials except for installed wiring, materials used for fan maintenance, direct fired heaters, and materials used for ground support.

§ *57.4–43*

The proposal stated that buildings and other structures erected after the effective date and within 100 feet of any mine opening must be of at least one-hour fire-resistant construction, and that existing buildings must meet the same requirements within 3 years.

For clarity, the final standard has been written in two paragraphs. Regarding 57.4–43(a), several comments requested clarification of the phrase "one-hour fire-resistant construction." In response, the phrase has been changed to "constructed of materials having a fire-resistance rating of no less than one (1) hour as tested under the appropriate National Fire Protection Association (NFPA) fire-resistance test or under a test of another approved testing agency." The term "approved" is defined in 30 CFR 57.2, "Definitions." This change is also in response to a comment stating that the proposed requirement for one-hour fire-resistance construction would not allow for openings in buildings, such as openings through which hoist ropes pass. MSHA agrees, and the final standard, as modified, would allow for the passage of hoist ropes from hoist rooms to outside headframes.

In the final standard, the term "other structures" has been changed to "other similar structures" to clarify that the standard applies to buildings and other structures similar to buildings. Therefore, the term "other similar structures" is not applicable to headframes or facilities of open construction and built of unprotected structural steel such as elevator machinery, crushing stations or conveyor transfer stations. The standard, however, is applicable to such structures as office facilities, supply houses and shops. Furthermore, the standard applies to buildings and other similar structures that are located either completely or partially within 100 feet of mine openings and are located on mine property. In response to comments, the term "mine openings" has been clarified in the final standard to "mine openings used for intake air and mine openings that are designated escapeways in exhaust air."

In response to additional comments, buildings and other similar structures constructed of materials such as sheet metal, corrugated metal, and steel will comply with the standard if the materials are tested and found to meet a fire-resistance rating of no less than one hour.

Comments indicated that the proposed standard would require an extensive rebuilding program on the part of the mining industry, and recommended that operators be provided with the alternative of installing a suitable automatic fire suppression system in existing buildings or structures. The final standard provides, in 57.4–43(b), that an automatic sprinkler system or other suitable automatic fire suppression system may be installed as a substitute for the one-hour fire-resistance material requirements in existing buildings and in buildings under construction. The standard provides the time within which these systems must be installed. To be "suitable" such a system must provide a degree of safety equivalent to that provided by compliance with the requirement for one-hour fire-resistance construction.

§ *57.4–44*

The proposed standard has been consolidated with standard 57.4–42.

§ *57.4–45*

The proposal stated that blacksmith shops had to be well-ventilated, equipped with exhaust vents over the forge, inspected at the end of each shift for smoldering fires, of at least one-hour fire-resistant construction and located at least 100 feet from mine openings or fan installations. Further, the shops could not be located in buildings or snowsheds adjoining mine openings or fan installations unless provided with a fire wall or fire doors. Several comments requested that this standard apply only to blacksmith shops established after the effective date of the standard. Because of the serious consequences of a fire in a blacksmith shop located near a mine opening or fan installation, it is essential that existing blacksmith shops comply with the requirements of the standard.

The phrase "one-hour fire-resistant construction" has been clarified in response to comments requesting guidance as to the phrase's meaning. The term "fire door" is defined in 30 CFR 57.2, "Definitions." Editorial changes have been made for clarity. In particular, the term "vagrant" has been deleted from paragraph (b) and paragraph (d) has been restated.

§§ *55/56/57.4–47*

Proposed standard 55/56/57.4–47, based on advisory standards 55/56/57.4–34 and 57.4–47, stated that where ignition of a conveyor belt would create a hazard to personnel, belt conveyors must be equipped with a safety switch to stop the drive pulley automatically in the event of excessive slippage. A comment stated that generally conveyor belts only smolder when excessively heated by friction and, consequently, the possibility of conveyor belt fires should be viewed as remote. MSHA disagrees. Conveyor belt fires can result from excessive slippage at the belt drive. Consequently, the standard is being retained. However, in response to comments, the standard has been modified and applies only when a belt conveyor is operated in a location "where ignition of the belt would create a hazard to personnel."

Recent experience has demonstrated that a second sentence must be added to cover those instances where it may be necessary to operate the conveyor belt while temporarily by-passing the safety switch or any automatic function of the switch. In those instances, a person will be required to attend the belt at the drive pulley.

While this standard applies to surface activities, existing mandatory standard

57.4–75 requires that belt conveyors located underground must be provided with slippage and sequence switches.

§ *57.4–55*

The proposed standard would have required that suitable fire protection be provided in transformer stations, pump rooms, and compressor rooms located in designated underground fire areas. Several comments requested a definition for the word "suitable." The word, defined in 30 CFR 57.2, "Definitions," has been retained to afford operators flexibility in choosing a system of fire protection that responds to their individual needs. MSHA has withdrawn for further study the proposed definition for "designated underground fire areas." The final standard requires that transformer stations, pump rooms, compressor rooms and similar installations located in "timbered areas or in areas where exposed rock is combustible" be provided with suitable fire protection.

§ *57.4–57*

The proposal stated that trailing cables must be flame-resistant in accordance with section 18.64, Part 18, CFR 30. No substantive comments were received on this standard. However, the advisory committee recommended that the Secretary allow time for compliance by industry. Consequently, this standard will become effective 15 months after publication in the **Federal Register.** Editorial changes have been made in the final standard for clarity.

§ *57.4–61A*

The proposed standard, based on advisory standard 57.4–61, stated that fire doors on ventilation control doors must be: provided as part of an overall evacuation plan on shaft stations or other appropriate locations where necessary to prevent the spread of smoke or gas; equipped with latches operable from both sides; remotely controlled where appropriate; and equipped with suitable man doors. The proposal also stated that the location and design of these doors had to be submitted to the Secretary for review and comment.

Standard 57.4–61A addresses the recognized potential for underground fires and the need to control air coursed into, and through, a mine in the event of fire. This control is essential to the protection and evacuation of miners in the event of an emergency.

The Sunshine Mine in Kellog, Idaho, had a major mine fire on May 2, 1972, which resulted in the deaths of 91 miners from smoke and harmful gas inhalation. The postfire investigation by the Bureau of Mines, Department of the Interior, determined that had ventilation doors (similar to a type required by this standard) been present at certain key locations, it is likely that the smoke and harmful gases from the fire could have been prevented from reaching the area where most of the men died. [Final Bureau Report, issued 2/14/73, p. 4, "Abstract," No. 9 and Report, p. 69, "Recommendations," Item 2(e).]

Comments questioned the types of doors required by the proposal. To clarify this issue, the reference to "fire doors or ventilation control doors" has been changed to "ventilation doors." The intent of the proposal was that the criteria for ventilation doors contained in existing mandatory standard 57.5–31 would be applied to the ventilation doors required by this standard. New paragraph (a) has been added in the final standard to clarify this intent and to provide operators with the requested guidance for construction of the ventilation doors. Consistent with standard 57.5–31, all doors required by standard 57.4–61A must be substantially constructed, covered with fire-retardant material (if constructed of wood), maintained in good condition, self-closing (if manually operated), and equipped with audible or visual warning devices (if mechanically operated).

New paragraph (b) of the final standard deals specifically with ventilation doors located in timbered areas, in areas where the exposed rock is combustible, or in areas where a significant fire hazard is present. In these areas, there is an increased danger of a fire destroying the doors, or causing them to fail. Doors in these areas, in addition to satisfying the requirements of standard 57.5–31, must be constructed according to the specifications within the definition of "fire door" in 30 CFR 57.2, "Definitions."

New paragraph (c) of the final standard clarifies, in response to comments, what was meant by the proposed phrase remotely controlled "where appropriate." The doors required by the standard must be provided with a means of remote closure "unless other means of closing the door are assured." Instead of remote control, operators many provide that a person is available in the area at all times to open or close doors in the event of a fire. The person must be in constant communication with the surface, whether by telephone, radio, or an equivalent means.

New paragraph (d) provides that the doors must not reopen as a result of a differential in air pressure. This provision has been added because the unintentional opening of doors could misdirect the mine ventilation air, including smoke or gas, thereby hampering escape and evacuation during an emergency and endangering the lives of miners.

New paragraph (e) clarifies the intent of the proposed requirements that the doors be "equipped with latches operable from both sides * * * and equipped with suitable man doors." The latches operable from both sides of the door were intended to insure that the door would be capable of being opened from either side by one person. Paragraph (e) states that the doors must be constructed so that they can be opened from either side by one person, or provided with a man door that can be opened from either side. Therefore, man doors are not required in all instances.

MSHA has found that, when ventilation and fire doors are installed, timber and other material is often piled around the frames of the doors. To promote safety, new paragraph (f) requires that all doors be kept clear of obstructions and extraneous materials.

Several comments questioned the relationship of this standard with mandatory standard 57.11–53. The proposed standard stated that doors shall be provided on shaft stations or other appropriate locations "as a part of an overall evacuation plan." To clarify the relationship of these standards, this wording has been changed to: "doors shall be installed at or near shaft stations of intake shafts and at any shaft designated as an escapeway under standard 57.11–53, or at other locations which provide equivalent protection." Once the required doors are installed, their locations must be indicated in the escape and evacuation plan.

With respect to the location of the required doors, MSHA agrees with comments which stated that the location of fire and ventilation doors must be determined on an individual mine-by-mine basis. MSHA has found that in most mines the best location for ventilation doors intended to prevent the spread of smoke or gas in the event of a fire has proved to be at or near shaft stations of intake shafts and at shafts designated as escapeways. The reference to these locations has been included in the final standard to serve as a guide regarding the ultimate location of the required doors. However, NSHA recognizes that in some mines the doors may be installed at appropriate locations other than those mentioned. Consequently, the phrase "or at other locations which provide equivalent protection" is included in the standard.

Many factors must be considered in determining the appropriate location in a particular mine for fire and ventilation doors. Among the factors to be considered are: the configuration of the mine; the escape and evacuation plan; the mine ventilation system; the ability to reverse air direction at fans; whether or not automatic fire suppression devices have been installed; the location of potential fire sources; whether facilities such as flammable or combustible liquid storage depots, explosives magazines and underground shops are located on separate splits of air; and the locations of seals.

In the proposed rulemaking, MSHA stated that it was particularly concerned that the portion of the proposed rule which provided for "review and comment" by the Secretary might not adequately ensure that all factors relevant to the location of the required doors would be fully considered and implemented in all cases [43 FR 40766]. Several comments were received in this regard. A few comments stated that review and comment was sufficient to insure full compliance and understanding of the standard. However, another comment stated that, as a practical matter, the location of the doors would have to be approved before an operator could proceed with assurance of full compliance with the standard. Another comment stated that the phrase "review and comment" allowed the Secretary only to make recommendations for which there was no enforcement authority; the recommendations could be rejected, and doors could be placed in inappropriate locations. MSHA agrees. It is the obligation of both the mine operators and the Secretary, through MSHA, to do everything possible to prevent disasters such as the one which occurred at the Sunshine Mine. The intent of the advisory standard can only be realized if MSHA ensures that doors are installed at appropriate locations. Consequently, the phrase "review and approval" has been included in the final standard. This provides MSHA with the authority to require that doors be installed at appropriate and specified locations. The submission of the location by the mine operators, and MSHA's review and approval, is consistent with the concurrent responsibility of both the mine operators and MSHA to protect the lives of miners in the event of a fire underground.

The final standard states that the location (and relocation) of the doors shall be submitted to MSHA for review and approval. For the standard to be fully effective, it is essential that MSHA approve all changes in the location of the doors. This standard is be effective February 13, 1980. To ease the burden on operators, requests for door location approval may be coordinated with escape and evacuation plan submissions under standard 57.11–53.

MSHA points out that approval of the location of doors in a particular mine does not relieve operators from the duty of constantly maintaining safe fire protection conditions in their underground mines. The requirement of approval will alert operators to the seriousness of fires in underground facilities. It also reflects a recognition that each mine is unique and presents particular problems.

§ *57.4–61B*

The proposal, based on advisory standard 57.4–61, stated that mine operators had to install a fire door or bulkhead of fire door construction in each shop opening to confine and prevent the spread of toxic gases from a fire originating in an underground shop. The fire door had to be: constructed to prevent reopening as a result of differential air pressure; provided with a man door capable of being opened from either side; suitably airtight; and clear of obstructions and extraneous material. The proposed standard further stated that it was to be applied where shop exhaust air could not be routed directly to an exhaust system and people would be endangered elsewhere in the mine by toxic gases from a shop fire.

The proposal has been revised in response to comments indicating confusion about the standard's application. The final standard clarifies that operators must either install fire doors or bulkheads in each opening to an underground shop, or route mine shop exhaust directly to an exhaust system in such a manner that personnel would not be exposed to toxic gases in the event of a fire originating in an underground shop.

Comments questioned the need for a specific standard for underground shops. The standard is being promulgated because undergound shops are particularly hazardous areas of mines. The maintenance of equipment involves oils, greases, and tires which, in combination with grinding, welding, heating and cleanup procedures, create a high potential for fire. A comment stated that it would be difficult to install fire doors or bulkheads in large open stope mines where large openings are needed for the movement of equipment. The standard provides operators with the option of routing mine shop exhaust directly to an exhaust system.

A comment expressed the opinion that there is no need for fire doors or bulkheads in the intake air opening of a shop if fire doors or bulkheads are in the exhaust air opening. In underground fires, smoke tends to roll back against the intake ventilation current; consequently, closing only the doors in the exhaust air opening could result in the contamination of intake air. In response to a comment regarding the necessity of a man door in a small fire door, paragraph (b)(2) of the final standard has been revised to allow fire doors without man doors if the fire doors can be opened from either side by one person.

§ *57.4–62*

The proposal stated that for a distance of 200 feet inside the mine portal or collar, timber and mine entrances must meet a flame spread rating of 25 or less as defined in ASTM M162–67 or have adequate fire protection. The final standard is corrected to read "Timber *in* mine entrances" in response to comments accurately citing a typographical error. A comment stated that the standard should apply only to mine entrances in intake ventilation. However, entrances in exhaust air also need the protection provided by this standard to prevent damage to the exhaust portal. A comment asked if the flame spread rating applies to timber in its installed condition "soaking wet" or to new dry timber before installation. Since the possibility exists that wet timber used in mine entrances could dry out, the flame spread rating applies to timber in its dry state. MSHA has reworded the language regarding flame spread ratings and deleted the phrase "as defined in ASTM M162–67." MSHA will accept ASTM method of test E–162 ("M162" was a typographical error), or an equivalent test, provided the operator establishes its equivalency.

§ *57.4–63*

The proposal stated that waterline outlets located at shaft stations had to have at least one fitting suitably located for connecting fire fighting equipment. No significant comments were received on this standard. It is promulgated with editorial changes in the proposed language.

§ *57.4–66*

The proposal stated that suitable fire protection must be provided for head, tail, drive and takeup pulleys on belt conveyors and at suitable intervals along belt lines. Several comments stated that the term "suitable" was

vague. The term is defined in 30 CFR 57.2, "Definitions." MSHA has retained this term since it provides mine operators with flexibility in choosing a fire protection system appropriate for their conveyor installations. The standard is promulgated with editorial changes in the proposed language.

§ *57.4–72*

The proposal stated that only trained mine rescue personnel can advance beyond the fresh air base in rescue and fire fighting operations. No substantive comments were received on this standard. It is promulgated with editorial changes in the proposed language. Certain aspects of this standard are also the subject of MSHA's proposed regulations on mine rescue teams (proposed as 30 CFR Part 49 on January 5, 1979, 44 FR 1536). In developing the final mine rescue team standards, MSHA will take into consideration any areas of potential overlap or conflict.

Section 5—Air Quality, Ventilation, Radiation, and Physical Agents

§ *57.5–25*

The proposed standard required that main fans be maintained either according to manufacturer's recommendations or a written periodic schedule adopted by the operator and available at the operation on request of the Secretary.

Several comments objected to the requirement that operators establish their own schedule for main fan maintenance in the absence of manufacturer's recommendations. MSHA believes that establishing such a schedule does not place an undue burden on operators. Furthermore, this alternative provides operators with flexibility in choosing a schedule which reflects their needs. The standard is promulgated with editorial changes.

§ *57.5–27*

The proposal stated that flame safety lamps or other suitable devices shall be used to test for acute oxygen deficiency. The proposed standard is promulgated without change. This standard addresses the need for a safe, quick test for acute oxygen deficiency. It is not intended to suggest that the devices required by this standard are adequate to test for compliance with mandatory standard 57.5–15. Standard 57.5–15 requires that air in all active workings contain at least 19.5 volume percent oxygen. Oxygen analyzers are generally used to measure for oxygen levels.

§ *57.5–29*

The proposed standard would have required that auxiliary fan systems (when used) be installed to prevent recirculation and be maintained to provide ventilation air that effectively sweeps the working places. In the final standard, the phrase "to prevent recirculation" has been changed to "to minimize recirculation" in response to comments. MSHA recognizes that minor recirculation at fans and leakage of air at stoppings can be tolerated so long as air quality standards are met. The standard is promulgated with the above revision and with editorial changes.

Section 6—Explosives

§§ *55/56/57.6–130*

The proposal stated that an least a 15-foot air gap must be provided between the blasting circuit and the electric power source. The advisory standard recommended a 5-foot air gap. Several comments objected to the increased from 5 feet to 15 feet for the gap between the blasting circuit and the electric power source, stating that small (e.g., 5′ x 8′) cross-section drifts could not comply. The cross-sectional width of drifts does not affect an operator's ability to comply with the standard. The 15-foot distance can be measured along the line of the drift. Because of the extremely high currents involved, even distant lightning strikes can detonate electric initiation systems in both underground and surface operations. The danger of lightning is increased considerably if there is any conductor to carry current between the storm and the shot location. A 15-foot air gap must be provided to act as a lightning break and the gap should be bridged by a flexible jumper cable just prior to firing the blast. The standard is promulgated with editorial changes.

§ *57.6–141*

The proposal, based on advisory standard 57.6–178, provided that shots must be initiated from one source in secondary blasting if more than one shot is to be fired at one time. There were no comments received on this standard. It is promulgated as proposed.

Section 7—Drilling

§§ *55/56/57.7–9*

The proposal stated that the drill helper (when used) shall be in sight of the operator at all times and shall assist the operator while the drill is being moved to a new drilling area. Several comments questioned whether the proposed standard was intended to require a drill helper to assist the dirll operator during movement of drill to a new location. The standard is revised to clarify that a drill helper is not required. However, if a drill helper is used, the mine operator must comply with the standard. Several comments stated that it is unnecessary and at times impossible to have the drill helper constantly in view of the operator. In response to these comments, MSHA has revised the proposal to require that the helper be "in sight of, or in communication with" the operator at all times. One means of communication is by radio. The language of the advisory standard, "to a new location," is substituted for the proposed phrase "to a new drilling area" because MSHA has determined that the proposed phrase would place undue limitations on the standard by excluding movements of drills to new locations for purposes other than drilling; for example, moving drills to a repair station. MSHA intends that the standard be applied in all instances that a drill helper is used to assist a drill operator during movement of the drill to a new location.

§ *57.7–28*

The proposal would prohibit persons form resting their hands on the chuck or centralizer while drilling. No significant comments were received on this standard and it is promulgated as proposed.

§ *57.7–32*

The proposal stated that columns and the drills mounted on them shall be anchored firmly before drilling is started and shall be so maintained while drilling. No comments were received on this standard and it is promulgated with editorial changes.

§§ *55/56/57.7–50*

Advisory standards 55/56/57.7–6 and 57.7–30 have been consolidated, made applicable to surface and underground, and renumbered 55/56/57.7–50. Proposed standard 55/56/57.7–50, based on the above advisory standards, stated that receptacles or racks shall be provided for drill steel and tools stored or carried on drills. No substantive comments were received and the standard is promulgated with the proposed language.

§§ *55/56/57.7–51*

Proposed standard 55/56/57.7–51, based on advisory standard 55/56/57.7–7, stated that tools and other objects shall not be left loose on the mast or drill platform. Comments questioned the use of the term "drill platform." With respect to mobile drills, the term drill

platform is commonly used throughout the mining industry to mean the work areas on those drills. Drill platforms are included in the standard because movement of the drill unit may relocate loose tools or objects to positions on the platforms that could be hazardous to personnel. The standard is promulgated with the proposed language.

§§ *55/56/57.7–52*

Advisory standards 55/56/57.7–15, 57.7–26, and 57.7–27 are consolidated, made applicable to surface and underground, and renumbered 55/56/57.7–52. Proposed standard 55/56/57.7–52, based on the above advisory standards, stated that persons must not drill from positions that hinder their access to control levers, or from insecure staging, or from atop unsuitable equipment. Some comments questioned whether the standard applies to all drills. The standard applies to hand operated drills, such as jackleg drills, where the operator might lose control of the drill if the operator is improperly positioned or is drilling from insecure footing or staging. The standard is promulgated with editorial changes in the proposed language.

§§ *55/56/57.7–53*

Advisory standards 55/56/57.7–19 and 57.7–29 are consolidated, made applicable to surface and underground, and renumbered 55/56/57.7–53. Proposed standard 55/56/57.7–53, based on the above advisory standards, provided that before hand-held drills are moved from one working area to another, air shall be turned off and bled from the hose. Several comments questioned whether the standard is applicable to all movements of hand-held drills. In this standard, "working area" means the working location of the drill. This standard is intended to apply when hand-held drills are moved from one working location to another. It is not intended to apply to movements of drills from hole to hole within a working location. Hand-held drills are heavy pieces of machinery that could severely injure personnel if accidently turned on. For this reason, MSHA is requiring that air be turned off and bled from the hose before drills are moved. A few commenters felt that safety shutoff valves provided adequate safeguards. MSHA disagrees. Valves in the air line do not automatically eliminate pressure in the hose to the drill. Hand-held drills can run for significant periods of time from residual air pressure in the lines and the drills will operate if the drill's admission valve is inadvertently depressed. The standard is promulgated as proposed.

§ *57.7–54*

Proposed standard 57.7–54, based on advisory standard 57.7–31, stated that drill operators shall be certain that all persons are in the clear before starting or moving equipment. Since no substantive comments were received, the standard is promulgated in Part 57 with editorial revisions in the proposed language. However, it will not be promulgated at this time in Parts 55 and 56 as proposed.

Section 8—Rotary Jet Piercing

§§ *55/56/57.8–1*

The proposal required that jet piercing drills have a system to pressurize the operator's cabs (when cabs are provided) and a protective cover over the oxygen flow indicator. The only comment received on this standard expressed a misunderstanding as to the standard's application. The standard does not require operators to use jet piercing drills, and need only be complied with when such drills are used. The standard is promulgated with editorial changes.

§§ *55/56/57.8–4*

The proposal provided that where equipment required refueling at locations other than fueling stations, a system for fueling from the ground without spill shall be provided. Several comments expressed confusion about the application of this standard. This standard has been revised to emphasize that it only applies when rotary jet piercing equipment is used. Additional comments expressed confusion regarding the phrase "from the ground." The phrase has been omitted to clarify that truck-mounted refueling tanks can be utilized provided refueling is accomplished without spill.

Section 9—Loading, Hauling, Dumping

§§ *55/56/57.9–10*

The proposal provided that cabs shall be constructed to permit the equipment operator to be reasonably comfortable and to see without straining. Comments objected to the ambiguity of the phrases "reasonably comfortable" and "see without straining." MSHA agrees with these comments. The final standard has been revised to require that cabs not be equipped, altered or otherwise modified in a manner which impairs operating visibility. The standard has been further revised, in response to comments, to clarify that it applies only to post-construction modifications of equipment operators' cabs, rather than to the cabs original design and construction.

§§ *55/56/57.9–16*

The proposal provided that certain trackage elements of railroads must be designed, installed and maintained in a safe manner consistent with speed and type of haulage. Comments stated that railroad equipment is often owned and operated by railroad companies or other entities over which the operator has little or no control. In response to these comments, the standard is revised to apply only to roadbeds, rails, joints, switches, frogs, and other trackage elements on railroads "subject to the control of the operator." In other respects, the standard is promulgated as proposed.

§§ *55/56/57.9–63*

The proposal stated that ramps and dumping facilities must be of substantial construction having suitable width, clearance and headroom to accommodate the equipment serviced. The main comments received on this standard concerned the uncertainty of the terms "substantial construction" and "suitable." Both terms are defined in 30 CFR 55/56/57.2, "Definitions." Several comments objected to the use of the term "serviced", for which MSHA has substituted the phrase "using the facilities." Other revisions in the standard are editorial.

§§ *55/56/57.9–70*

The proposal provided that heavy equipment must be towed with a substantially constructed tow bar unless another means is advisable; and, in addition, a substantial safety chain or wire rope must be used. Several comments stated that the proposed standard was not clear regarding its application to the towage of different types and sizes of heavy equipment. Comments also indicated that the use of a tow bar would, in some instances, be more dangerous than a suitable alternative. For example, a tow bar adopted for a large dump truck may be so large and heavy that its mere handling and placement would expose a number of persons to danger. In response, the wording of the first sentence has been changed to allow, as an alternative to a tow bar, "other suitable means of control." The change allows flexibility, provided that the alternative means maintains the same degree of control over the towed vehicle as a tow bar. Comments inquired whether the standard was applicable to mine trains. The standard does not apply to couplers between cars of mine

trains. The second sentence of the standard was modified to shorten the phrase "tow bar or primary rigging" to merely "primary rigging."

§§ 55/56/57.9–74

Proposed standard 55/56/57.5–4 stated that dust shall be suitably controlled at muck piles, haulage roads, rock transfer points, crushers, and other points where dust is produced in amounts sufficient to cause a health or safety hazard. The intent of this standard is to protect persons from injuries that may result from impaired visibility. The proposed standard has been changed to clarify this intent. This has been accomplished by substituting the phrase "where hazards to personnel may be created as a result of impaired visibility" for the proposed phrase "where dust is produced in amounts sufficient to cause a health or safety hazard." The final standard lists specific locations where the dust must be suitably controlled, namely, muck piles, material transfer points, crushers, and haulage roads. MSHA has deleted the proposed phrase "and other points" following the list of locations. The change results from MSHA's agreement with comments stating that the proposed phrase was too broad and uncertain.

Comments questioned whether "wetting down" is an acceptable method of controlling dust. "Wetting down" is one of the most effective means of complying with the standard and can be used at all locations designated. However, operators may choose to use other methods to protect personnel from hazards which can result from dust in addition to, or as an alternative to, "wetting down." For example, vehicles on haulage roads can be required to travel at slower speeds or with greater distances between the vehicles.

Several comments questioned whether the proposed standard was a health or safety standard, or both. The health hazards associated with dust are already covered by existing mandatory standards 55/56/57.5–1, 55/56/57.5–2, and 55/56/57.5–5. In response to these comments, and because the standard addresses muck piles, haulage roads, rock transfer points, and crushers, proposed standard 55/56/57.5–4 has been transferred to 30 CFR 55/56/57.9, "Loading, hauling, dumping," and renumbered 55/56/57.9–74. In its new location in the CFR, this standard replaces advisory standard 55/56/57.9–18, which was revoked based on the coverage provided by proposed standard 55/56/57.5–4.

§ 57.9–105

The proposal stated that empty chutes must be properly guarded prior to filling or sufficient material must be left in the chute bottom to prevent rock from flying out when broken material is dumped into the chute. No comments were received on this standard. It is promulgated with editorial changes in the proposed language.

§ 57.9–115

Under the proposal, covered man trip cars would be provided where there is danger of passengers contacting the trolley wire. The only comment on this standard suggested it be revoked because the proposed language "where there is danger" was undefined. Because of the severity of injury that can result from contact with trolley wires, it is imperative that man trips be covered if there is a possibility of persons coming into contact with the wires. The standard is promulgated with editorial changes in the proposed language.

Section 10—Aerial Tramways

§§ 55/56/57.10–1

The proposal prohibited the overloading of buckets and required that feed be regulated to prevent spillage. A few comments indicated some confusion about the application of this standard. The standard applies only to buckets on aerial tramways and not to buckets on other systems. The standard is promulgated as proposed.

§§ 55/56/57.10–2

The proposal provided that inspection and maintenance of carriers must be by competent persons following manufacturers' recommendations and as conditions warrant. Comments questioned the general application of this standard. The standard applies to aerial tramways only. The proposed standard is promulgated with an editorial revision.

§§ 55/56/57.10–4, §§ 55/56/57.10–5 and §§ 55/56/57.10–6

Proposed standard 55/56/57.10–4 provided that aerial tramways must be equipped with automatic, positive-action-type brakes and devices which apply the brakes automatically in the event of power failure. Proposed standard 55/56/57.10–5 stated that track cable connections shall not obstruct the passage of carriage wheels. Proposed standard 55/56/57.10–6 provided that towers must be protected from swaying buckets. A few comments questioned the applicability of the standards to sand and gravel operations. These standards are applicable only to the extent that aerial tramways are used on mine property or in mining operations. The standards are promulgated as proposed.

Section 11—Travelways and Escapeways

§§ 55/56/57.11–4

The proposal provided that portable rigid ladders must have suitable bases and be securely placed. A few comments requested examples of "suitable bases." MSHA would consider "suitable bases" to include non-slip ladder shoes or spikes or other devices that secure the ladder in position when work is performed from the ladder. The standard is promulgated with editorial revisions.

§§ 55/56/57.11–7

The proposal would prohibit painting wooden members of ladders with anything except a transparent finish. The intent of this standard is to avoid the concealment of defects or damage. This standard is promulgated with editorial changes. Because the word "members" may cause confusion, the phrase "wooden members of ladders" has been changed to "wooden components of ladders."

§§ 55/56/57.11–10

The proposal provided that stairs must have a vertical clearance of at least 7 feet, or a suitable warning must be provided. A request was made for additional time to comply with this standard. MSHA feels that the 90-day delayed effective date provided by this rulemaking for compliance will give operators ample time to meet this standard's requirements. One comment suggested that MSHA clarify the standard by adding the words "signs or devices" following "suitable warning." MSHA agrees and has incorporated the phrase "suitable warning signs and similar devices" in the final standard.

§§ 55/56/57.11–11

The proposal would have required that persons climbing or descending ladders face the ladders and have both hands free for climbing. The final standard is clarified to require that persons using ladders face the ladders and have both hands free for climbing and descending. The fact that miners may be trained in the use of ladders does not eliminate the need for a standard requiring compliance with this important work practice.

§§ *55/56/57.11–17*

This standard, which prohibits fixed ladders from inclining backwards, is promulgated as proposed. Comments suggested that sufficient time be granted to comply with the standard. MSHA feels that the 90-day delayed effective date of this rulemaking provides sufficient time for compliance.

§§ *55/56/57.11–25*

The proposal listed detailed specifications for ladders used to ascend to heights exceeding 20 feet. Several comments were received requesting a "grandfather clause" since the proposal would have caused many existing and safe ladders to be considered as unacceptable. Additional comments stated that portions of the proposed standard were unclear. In response to these comments the proposed standard has been changed to conform more closely with the language of the original advisory standard. The final standard requires that fixed ladders, except on mobile equipment, shall be offset and have substantial railed landings at least every 30 feet. Backguards or equivalent protection, such as safety belts and safety lines, are acceptable in lieu of the substantial railed landings. MSHA believes that the final standard responds to the basic concerns of the comments, and therefore makes a "grandfather clause" unnecessary.

§§ *55/56/57.11–26*

The proposal provided detailed requirements and figures for the construction of cages and wells. Several comments expressed concern over the detailed requirements of the proposed standard. They noted that many operations have adequate cages or wells constructed in a manner which complies with the advisory standard, but which would not comply with the proposed standard. In consideration of these comments, the language of the original advisory standard is promulgated with editorial changes. MSHA will undertake a further study of cage and well design.

§ *57.11–37*

The proposal stated that ladderways constructed after the effective date of the standard must have a minimum unobstructed cross-sectional opening of 24 inches by 24 inches measured from the face of the ladder. Comments concerned the difficulty of maintaining the 24 inch by 24 inch minimum opening for a ladderway where high rock stresses distort or reduce the size of the opening and the difficulty of complying with the standard in veins less than 24 inches wide. MSHA has determined that injuries have unnecessarily occurred because inadequate ladderway openings prevented the safe and rapid passage of miners, rescue teams, or medical equipment during emergencies. Therefore, the standard is promulgated as proposed. MSHA notes that in situations involving mines with unusual physical configurations, a variance procedure is available for obtaining a modification of the application of a safety standard (30 CFR Part 44).

§ *57.11–38*

The proposal stated that before entering a manway in which persons are working, a warning must be given and acknowledged. A comment stated that the standard does not recognize the difficulties in transmitting warnings through long manways. However, MSHA believes that compliance with the requirements of this standard is essential in order to reduce unnecessary exposure to potential hazards.

The standard is promulgated with editorial changes for clarity.

§ *57.11–40*

The proposal provided that travelways steeper than 35 degrees be provided with ladders or stairways. A comment was received stating that 35 degrees should be changed to 45 degrees since ladders and stairs at 35 degrees are more difficult to travel than ground at the same slope. Stairways are used because they are easier to travel than a slope. A stairway normally does not exceed a 7-inch riser with a 10-inch tread, or an average slope of 35 degrees from the horizontal. Ladders are usually considered for slopes greater than 35 degrees. Therefore, the standard is promulgated as proposed.

§ *57.11–41*

The proposal stated that fixed ladders with an inclination of more than 70 degrees from the horizontal had to be offset with substantial landings at least every 30 feet or have landing gates at least every 30 feet. Comments cited difficulties in offsetting with substantial landings many fixed ladders currently in use. However, the only fixed ladders affected by this standard are those with an incline of more than 70 degrees from the horizontal. Furthermore, the standard provides operators with an alternative to the requirement that the affected ladders be offset with substantial landings at least every 30 feet. The standard allows operators to provide landing gates at least every 30 feet. The standard is promulgated with an editorial change.

§ *57.11–56*

The proposal stated that emergency hoists designated in any evacuation plan must be in compliance with the inspection and testing requirements of standard 57.19–120. Comments received on this standard suggested either that it be revoked or that the inspections be scheduled less frequently. Since it is essential that an emergency hoist function properly during a mine emergency, frequent inspection, testing and maintenance must be conducted. The standard is promulgated with an editorial change.

The advisory standard recommended that emergency hoists should conform, to the extent possible, to the safety requirements for man hoists, and that emergency hoists should be adequate to remove miners from the mine with a minimum of delay. In eliminating these directives from the new mandatory standard, it is not intended to imply that emergency hoists which are specifically designed, installed and used for the escape and evacuation of personnel be required to comply with the mandatory standards for personnel hoists in 30 CFR 57.19, "Man hoisting." Emergency hoists are intended to perform different functions than other hoists that are used daily over a long term to raise and lower personnel and materials. Emergency hoists are designed to provide simplicity of operation, are located in designated escape areas, and are maintained on a stand-by basis to evacuate personnel quickly in the event of an emergency. However, to continue MSHA's current policy and to clarify the application of the hoisting standards in 30 CFR 57.19, the introductory statement to 30 CFR 57.19 is amended by adding a new second paragraph which restates the former advisory standard directives. MSHA is currently developing new mandatory standards applicable to the particular needs for emergency escape facilities.

Section 12—Electricity

§§ *55/56/57.12–4*

The proposal stated that electrical conductors must be selected so that a normal rise in temperature would not damage the insulation. In addition, the proposal called for suitable protection from mechanical injury. Some objections were made to the use of the word "suitable." The word has been deleted in the final standard. A comment stated that the words "mechanical damage" are preferable to the proposed words "mechanical injury." These words have been substituted in the final standard.

§§ *55/56/57.12–19*

The proposal stated that suitable clearance had to be provided at stationary electrical equipment or switchgear where access is necessary. Some comments requested MSHA to consider including the applicable provisions of the National Electric Code in the standard. MSHA will study the need for such a change. Other comments requested a definition for "suitable clearance." The word "suitable" is defined in 30 CFR 55/56/57.2, "Definitions." The word is retained to provide operators with the flexibility required to meet their varying needs. The standard is promulgated as proposed.

§§ *55/56/57.12–22*

The proposal stated that areas containing major electrical installations can only be entered by authorized persons. Several comments asked for a definition of "major electrical installation," and one comment asked for a definition of "authorized." These terms are defined in 30 CFR 55/56/57.2 "Definitions." The standard is promulgated as proposed.

§§ *55/56/57.12–35*

The proposal stated that lamp sockets exposed to weather or wet conditions must be of a weatherproof type. The intention of the proposed standard is to protect miners from potential electrical shock and injuries that could occur when there is an unintentional failure of illumination in work areas exposed to weather or wet conditions. Comments stated that more effective devices for shock prevention such as circuit interrupters should be used. Circuit interrupters will protect miners from electrical shock, but are not an acceptable alternative to weatherproofing exposed lamp sockets because circuit interrupters will not provide the same degree of safety in locations where illumination is critical. Weatherproofing lamp sockets exposed to weather or wet conditions will protect miners because the lamp sockets are to be constructed or protected in such a way that exposure to these conditions will not interfere with their successful operation. The term "weatherproof" under this standard is to be applied in a manner consistent with the use of the term in the National Electrical Code. Accordingly, weatherproof type lamp sockets will protect the fixture when dust or temperature extremes will interfere with their successful operation. Furthermore, rainproof, raintight, or watertight sockets may be substituted for weatherproof type where wetness is the only factor affecting successful operation. Other comments stated that the standard should apply only where employees are exposed to a hazard. The proposed standard has been changed by adding the qualifying phrase "that may interfere with illumination or create a shock hazard" to clarify that the term "weatherproof" is to be applied in a manner consistent with the use of this term in the National Electrical Code. Comments also urged that inaccessible lamp sockets not be included in the standard. Inaccessible lamp sockets are subject to the standard to assure that the intended illumination is maintained in appropriate work areas.

§§ *55/56/57.12–38*

The proposal stated that trailing cables must be connected to machines in a suitable manner to protect the cable and to prevent strain on the electrical connections. No comments were received on this standard. It is promulgated as proposed.

§§ *55/56/57.12–39*

The proposal provided that the surplus trailing cables to shovels, cranes and similar equipment must be stored in cable boats or on reels mounted on the equipment or otherwise protected from mechanical damage. Several comments questioned whether operators were required to install cable boats or reels on all mobile equipment. This is not the intent of the standard. The procedures that may be used to protect cable from mechanical damage to the insulation and conductors are numerous.

Operators may protect cables by storing them in cable boats or on mounted reels, hanging them from supports on the roof or ribs, or storing them in areas where no mechanized activities take place. Editorial revisions have been made in the proposal.

§§ *55/56/57.12–50*

The proposal stated that trolley wires must be installed at least seven feet above the rails, where possible, and aligned and supported to control sway and sag. Comments requested that the standard be deleted from Part 56, which covers sand, gravel and crushed stone operations, asserting that trolley wires are not used in such mines. However, MSHA is retaining the standard in Part 56 to provide safety to the extent that trolley wires may be used in such surface facilities. One comment asked that a "grandfather clause" be added to the standard. MSHA believes immediate compliance with this standard is essential, considering the safety benefits it provides. The standard is promulgated as proposed.

§§ *55/56/57.12–53*

The proposal provided that ground wires for lighting circuits powered from trolley wires be connected securely to the ground-return circuit. There were no comments received on this standard and it is promulgated as proposed.

§ *57.12–86*

The proposal stated that trolley wire and trolley-feeder wire must be installed opposite the clearance side of haulageways, except if that is not feasible. No comments were received on this standard. However, the proposal has been revised for clarity. A second sentence in the final rule has been substituted for the proposed phrase "except where it is not feasible." MSHA recognizes that the configurations of some mines are such that physical limitations prevent the safe installation or use of trolley and trolley-feeder wire opposite the clearance side of the haulageways.

§§ *55/56/57.12–88*

The proposal stated that only a vulcanized splice or an equivalent splice can be made in trailing cables within 25 feet of the machine unless a cable reel is supplied; it also permitted a temporary splice to be made, if necessary, to move the equipment for repair. One comment suggested that there are means other than cable reels for the payout or retrieval of power feed cable, and that the standard should be modified to accommodate this technology. The standard has been revised to reflect this comment by the addition of the phrase "or other power feed cable payout-retrieval system." This standard is intended to protect the first 25 feet of cable where the maximum bending and wear occur, and to protect the machine operator or helper in the area where most work is performed.

Section 13—Compressed Air and Boilers

§§ *55/56/57.13–10*

The proposal stated that reciprocating-type air compressors rated over 10 horsepower must have automatic temperature-actuated shutoff mechanisms unless fusible plugs had been installed in the discharge lines. Comments requested that this standard apply only to unattended reciprocating-type air compressors. However, the danger of fire or explosion is inherent in almost all air compressor systems, whether attended or automatic. The compression of air creates high

temperatures which may result in the ignition of lubricating oil or the formation and ignition of carbon-type deposits. Another comment requested that air compressors located outside of buildings or structures be exempt from the requirements of the standard. Since fire or explosion may present a hazard to personnel wherever the reciprocating-type air compressor is located, MSHA will not limit the application of this standard to compressors located inside buildings. The standard has been reorganized and reworded for clarity. The final standard does not apply to reciprocating-type air compressors equipped with fusible plugs that were installed in the compressor discharge lines before the effective date. However, these plugs must be designed to melt at temperatures at least 50 degrees below the flash point of the compressor's lubricating oil.

§§ *55/56/57.13–11*

The proposal would have required that compressors and air receiver tanks be equipped with one or more automatic pressure-relief valves and that the total relieving capacity of such relief valves must prevent pressure from exceeding the maximum allowable working pressure in a receiver tank by no more than 10 percent. Under the proposed rule, air receiver tanks were to be equipped with: indicating pressure gages designed to accurately measure pressure within the air receiver tanks; drain valves installed at the lowest point of the receiver tanks; and traps to prevent oil, moisture and other contaminants from being expelled through the discharge lines. Based upon comments, the requirement that commpressors be equipped with pressure-relief valves is deleted. The standard now requires that only air receiver tanks be equipped with one or more automatic pressure-relief valves and indicating pressure gages. Several comments suggested the elimination of drain valves and traps from the standard. The requirement that drain valves and traps be installed has been deleted since MSHA recognizes that drain valves and traps are related primarily to the maintenance and longevity of equipment rather than to personnel safety.

§§ *55/56/57.13–12*

The proposal stated that compressor air intakes must be installed to ensure that only clean, uncontaminated air enters the compressor. Several comments requested that the phrase "clean, uncontaminated air" be defined. "Clean, uncontaminated air" is air meeting the air quality requirements in 30 CFR 55/56/57.5, "Air quality, ventilation, radiation and physical agents." Several comments stated that the standard relates only to maintenance practices. MSHA disagrees. This standard is intended to assure that personnel are not harmed by inhaling air that is contaminated with toxic gases or dusts or fumes containing carbon monoxide or oxides of nitrogen. The standard is also intended to lessen the possibility of an explosion resulting from the intake of oil or gasoline vapors into the compression chamber. It is promulgated as proposed.

§§ *55/56/57.13–15*

The proposed standard provided that compressed-air receivers and other unfired pressure vessels be inspected in accordance with the applicable chapters of the National Board Inspection Code, 1977, which was incorporated by reference in the standard. [2] A comment asked for the qualifications for an inspector of the air receiver tanks. In general, to qualify, a person must: hold a valid National Board Commission; have qualified by written examination under the laws, rules and regulations of a jurisdiction of a State; and be continuously employed as an inspector by a jurisdiction which has adopted and administers one or more sections of the ASME Boiler and Pressure Vessel Code as a legal requirement, and has a representative serving as a member of the ASME Conference Committee. The proposed standard has been changed to specify that inspections are to be conducted by an inspector who holds a valid National Board Commission. Several comments expressed concern with the inspection frequency for air receiver tanks. The frequency of inspection will vary according to the application: a visual external inspection once every 12 months and an internal inspection or hydrostatic pressure test once every 5 years. A comment suggested that air receiver tanks buried underground should be exempt from the standard. MSHA disagrees because pressure vessels must be inspected for exterior corrosion, required markings must be readily visible, and vessels must be examined for possible leaks during hydrostatic testing. All pressure vessels regardless of location must be subject to these (and other) uniform requirements. A comment requested clarification of the size and use of air receiver tanks subject to the standard. All air receiver tanks are covered by the standard, except those exempt under Part U–1, Division 1, Section VIII, of the ASME Boiler and Pressure Vessel Code (such as air tanks used on vehicle brake systems, flammable or combustible tanks, or fire protection equipment).

A comment objected to the incorporation by reference of the National Board Inspection Code, and requested that those persons who are regulated by the standard be furnished with a copy of the Code. The National Board Inspection Code is a document which is readily available. Both the proposed and final standards further provide that the Code may be examined at any Metal and Nonmetal Mine Safety and Health District Office, MSHA, and may be obtained from the publisher, the National Board or Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

The purpose for incorporating the National Board Inspection Code for the inspection of compressed-air receivers and other unfired pressure vessels is to maintain the integrity of those vessels after they have been placed into service by providing rules and guidelines for examination after installation, repair, alteration and re-rating.

The Advisory Committee considered and recommended that the Secretary adopt the 1977 publication of the National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, approved by the National Board Executive Committee on January 27, 1977, and published by the National Board of Boiler and Pressure Vessel Inspectors. This publicaiton was proposed in the **Federal Register** on September 12, 1978. However, the National Board of Boiler and Pressure Vessel Inspectors has since published the 1979 edition. The publisher indicates that the 1979 edition is a reprint of the 1977 edition, with revisions which are primarily editorial in nature. Several paragraphs have been reworded for clarification and the National Board Inspection Code Committee has retained the basic concepts and provisions which were contained in the 1977 edition. Since the 1977 edition is difficult to obtain and has been updated by the publisher, standrd 55/56/57.13–15 incorporates the 1979 edition (the National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979, approved by the National Board Executive Committee on

[2] On March 28, 1979, 44 FR 18630 (corrected April 2, 1979, 44 FR 1981), the Office of the Federal Register amended its regulations (1 CFR 51.13) concerning approval of incorporations by reference in the Code of Federal Regulations. Approval for such incorporations by reference appearing in Title 30, CFR Parts 55, 56 and 57 are withdrawn effective July 1, 1980. MSHA is currently reviewing its regulations containing incorporated reference material, and intends to take whatever action may be necessary and appropriate to comply with the newly amended **Federal Register** procedure.

September 22, 1978). Editorial changes have also been made to the final standard, including a clarification that records shall be kept in accordance with the requirements specified in the Code, and that the records are to be made available to the Secretary or his authorized representative. During an inspection, an authorized representative will review these records and, if the records indicate that a boiler is not in compliance with the appropriate criteria and certifications required under the National Boiler Inspection Code, citations and orders will be issued, as appropriate.

§§ *55/56/57.13–17*

The proposal stated requirements for the maintenance of compressor discharge pipes in which carbon may accumulate. Several comments requested that the annual requirement for cleaning of carbon build-up in air compressors be deleted. Although the inspection requirement has not been deleted in the final rule, MSHA has extended the period between inspections to two years. Periodic cleaning of the discharge pipes at or near the compressor cylinders is necessary because high temperatures can result from dirt or carbon deposits. These high temperatures increase the likelihood of explosions, fires, or mechanical failures. One comment suggested that the standard be applied only to stationary compressors. Since fire or explosion hazards are present in both mobile and stationary compressors, the standard has not been revised as requested.

§§ *55/56/57.13–30*

The proposal stated that boilers must be equipped with certain safety devices to protect against specified hazards in accordance with listed sections of the ASME Boiler and Pressure Vessel Codes, 1977, and the National Board Inspection Code, 1977. Also under the proposal, competent persons must design, install, operate maintain, repair, alter, inspect, and test the devices in accordance with the codes. A comment objected to the proposal to incorporate by reference in the standard the listed sections of the ASME Boiler and Pressure Vessel Code, 1977, published by the American Society of Mechanical Engineers, and the listed chapters and appendices of the National Board Inspection Code, 1977, published by the National Board of Boiler and Pressure Vessel Inspectors. A similar objection also was raised relating to the incorporation of the National Boiler Inspection Code in proposed standard 55/56/57.13–15. Boiler and pressure vessels used in metal and nonmetal mining and milling operations must be constructed, installed, and maintained in accordance with the ASME Code under mandatory standard 55/56/57.13–1. Mine operators therefore are familiar with the ASME Code. The purpose of incorporating the ASME Code in proposed standard 55/56/57.13–30 is to protect boilers equipped with water level gages, pressure gages, automatic pressure-relief valves, blowdown piping, and other ASME approved safety devices against overpressure, flameouts, fuel interruptions, and low water levels.

Uncontrolled, excessive steam pressure in boilers is hazardous to persons in the vicinity of the boilers. Flameouts and fuel interruptions may lead to fuel explosions. Low water levels can cause damage to the boilers from overheating and can lead to steam explosions. Blowoff openings need to be located so that steam is discharged to the outside of buildings where it will not injure persons. Inspection is essential to the safe operation of boilers. Adoption of the ASME Boiler and Pressure Vessel Code and the National Board Inspection Code provides nationally recognized standards that can be uniformly applied to all metal and nonmetal mining and milling operations.

The Advisory Committee considered and recommended that the Secretary adopt the 1977 publication of the National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, approved by the National Board Executive Committee on January 27, 1977, as an incorporation under standards 55/56/57.13–15 and 55/56/57.13–30. This edition was proposed in the **Federal Register** on September 12, 1978. However, as discussed in response to a comment on standard 55/56/57.13–15, the National Board of Boiler and Pressure Vessel Inspectors has published a 1979 edition and this edition has been incorporated by reference into the final standard.

Several comments questioned whether the records of inspection and repairs would be used by MSHA as the basis for issuing citations or orders. The standard requires that mine operators keep only those records that are required by the ASME Boiler and Pressure Vessel Code and the National Board Inspection Code, and that these records be made available to the Secretary or his authorized representatives. During an inspection, an authorized representative will review these records and, if the records indicate that a boiler is not in compliance with the appropriate criteria and certifications required under the ASME Code or the National Boiler Inspection Code, citations and orders will be issued as appropriate.

Certain editorial changes have been made in the proposed standard for clarity. These changes include clarification that gages, devices, and piping must be inspected by an inspector who holds a valid National Board Commission.

Section 14—Use of Equipment

§§ *55/56/57.14–3*

The proposal stated that guards at conveyor drive, head, and tail pulleys shall extend a sufficient distance to prevent a person from accidentally becoming caught between the belt and pulley. Several comments stated that the hazards addressed by this standard are covered by mandatory standard 55/56/57.14–1, which requires that the conveyor drive, head, and tail pulleys be guarded. Standard 55/56/57.14–3 provides additional protection by mandating that the guards, which are required by standard 55/56/57.14–1 at conveyor drive, head, and tail pulleys, extend a distance sufficient to prevent persons from inadvertently reaching behind the guard and becoming caught between the belt and pulley. The standard is promulgated as proposed.

§§ *55/56/57.14–7*

The proposal stated that guards must be substantially constructed and properly maintained. Comments stated that mandatory standard 55/56/57.14–1, which requires guards on exposed moving machine parts, provides the same protection as standard 55/56/57.14–7. Although standard 55/56/57.14–1 requires guards, it does not address their construction and maintenance. Standard 55/56/57.14–7 addresses these issues. Other comments requested a definition for "substantial construction." This term is defined in 30 CFR 55/56/57.2, "Definitions." This standard is promulgated with revisions for clarity.

§§ *55/56/57.14–11*

The proposal stated requirements for protection against flying or falling material. Some comments expressed the opinion that the coverage of this standard is too broad and suggested that its application be limited to crushing, screening and conveying operations. MSHA disagrees. The intent of this standard is to provide protection in all areas where flying or falling materials present a hazard to personnel. The standard is promulgated with an editorial change.

§§ *55/56/57.14–27*

The proposal stated that only competent persons may operate equipment or machinery. Several comments stated that the provision in the proposal permitting supervised trainees to operate machinery or equipment duplicated the requirements of MSHA's Training Regulations. As a result of these comments, MSHA has deleted the provision. MSHA's training and retraining regulations permit trainees to operate machinery or equipment while under direct and immediate supervision. In other respects the standard is promulgated as proposed.

§§ *55/56/57.14–36*

The proposal stated that tools and equipment must be used within the design capacity for which they are intended and designed. Comments received on this standard essentially stated that the standard was overly restrictive. The comments indicated that many kinds of tools and equipment are not specifically designed for use in the mining environment, and they must be modifed to perform mining tasks. Comments further stated that the actual capacity of a piece of equipment can change depending on variables in operating conditions. Comments requested that operators be allowed to use tools and equipment for other than "intended" uses, or to modify tools and equipment, so long as there is no compromise of personnel safety. In response to comments, MSHA has revised the proposed language. The final standard requires that tools and equipment shall not be used beyond the design capacity intended by the manufacturer where such use may create a hazard to personnel.

§ *57.14–55*

The proposal stated that welding operations must be shielded and well-ventilated. Comments suggested modifying the standard by adding the phrases "shielded by location or isolation" and "if employees in the area could be harmed by the flash." The adoption of these suggestions would remove the protection provided by the standard for persons who inadevertently enter a welding area. The standard is promulgated with the proposed language.

Section 16—Material Storage and Handling

§§ *55/56/57.16–1*

The proposal stated that stacked supplies shall not create a stumbling or fall-of-material hazard. No comments were received on this standard. It is promulgated with editorial revisions for clarity.

§§ *55/56/57.16–2*

The proposed standard stated that bins, hoppers, silos, tanks and surge piles in or on which loose, unconsolidated materials are stored, handled, or transferred must have: devices or means to protect persons from exposure to caving or sliding material; supply and discharge controls located so that their operation will not expose the operator to danger from spillage; suitable walkways where persons must walk over or around the facility; and ladders, platforms, or staging where persons are required to enter the facility. The proposal contained additional requirements regarding the use of safety belts and lifelines. A comment objected to the requirement in proposed paragraph (d) that the "second" person wear a safety belt or harness equipped with a lifeline while attending the lifeline of a person entering the material storage facility. The requirement is retained because a safety belt or harness equipped with a lifeline is necessary to protect the "second" person from being pulled into the facility. Another comment questioned the need for a suitable walkway around all surge piles. The standard only requires walkways or passageways around or over facilities that persons are required to move over or around. In further response to the comment, in most instances solid, unobstructed ground would be a suitable walkway around surge piles. Another comment recommended that "other suitable devices" be allowed in lieu of the safety belt or harness attached to a lifeline. MSHA disagrees. The safety belt or harness equipped with a lifeline is the minimum requirement for protecting persons in situations addressed by the standard. The standard is promulgated with editorial revisions for clarity.

§§ *55/56/57.16–7*

The proposal stated requirements for hitches and slings used to hoist materials, and taglines used to steady loads. One comment objected to the required use of taglines on loads suspended below eye level, suggesting the requirement is unsafe or unenforceable. MSHA disagrees. If taglines are not used, persons would be required to handguide loads below eye level, thereby placing persons in hazardous positions should the load drop or shift. The standard is promulgated with editorial revisions for clarity.

§§ *55/56/57.16–10*

The proposal stated that material must not be dropped from an elevated position until the drop area is cleared of persons, and then is guarded or a warning is given. Comments objected to the requirement that operators erect guards or give warnings in instances where personnel have already been cleared from drop areas. However, since many accidents have occurred after persons were supposedly cleared from drop areas or entered them undetected, the standard is necessary. In response to a comment regarding dump truck loading, MSHA does not intend the standard to cover the loading of dump trucks when provisions have been made for personnel safety, such as the installation of a shield over the cab of a truck to protect the driver. The standard is promulgated with editorial revisions.

§§ *55/56/57.16–12*

The proposal stated that concentrated acids and alkalies must be stored to prevent inadvertent mixing with each other or with other substances with which they will react violently or liberate dangerous fumes. A comment suggested that the hazards addressed by the standard are already covered by mandatory standard 55/56/57.16–3. MSHA disagrees. Standard 55/56/57.16–3 deals with the storage of materials which, due to their inherent nature could create hazards if liberated. Standard 55/56/57.16–12 deals with the storage of substances which could create hazards when contact is made with other substances. The standard is promulgated with revisions for clarity.

The intent of the advisory standard was to control the storage of substances which, when mixed react violently or liberate dangerous fumes. The proposal limited the substances to concentrated acids and alkalies. The proposal has been revised to cover "chemical substances, including concentrated acids and alkalies," so that the scope of the original advisory standard is retained.

§§ *55/56/57.16–13*

The proposal stated that before molten metal is poured or moved, a warning must be given. A comment was received stating that shop-type operations where small amounts of metal are poured should be excluded from the coverage of the standard. The standard was not altered because the hazards stemming from moving and pouring molten metal are the same

regardless of the amounts of metal involved. The standard is promulgated, however, with editorial revisions.

§§ *55/56/57.16–16*

The proposal stated that fork and other similar type lift trucks must be operated: with the uprights titled back; with the load in the upgrade positon when traveling on grades steeper than 10 percent; with the load not raised or lowered during travel, except for minor adjustments; and, if unloaded, with the load-engaging mechanism downgrade. One comment suggested modifying paragraph (d) of the proposed standard to require that unloaded trucks travel on all grades with the load-engaging mechanism upgrade to assist in slowing down the vehicle. The standard is not revised to reflect this comment, since forks are hinged forward and would not aid in slowing down the vehicle. However, certain editorial changes have been made in the final standard for clarity.

§ *57.16–17*

The proposal stated that where the stretching or contraction of a hoist rope could create a hazard while heavy equipment is loaded or unloaded, blocking must be utilized. The standard recognizes that some distortion of the hoist rope will occur whenever heavy material is loaded into, or unloaded from, the conveyance. In order to protect miners but not require blocking in every material loading or unloading operation, the standard states that blocking is required only where stretching or contraction of the rope could create a hazard. The proposed expansion into Parts 55 and 56 is withdrawn, and the final rule is promulgated only in Part 57. The standard is promulgated with an editorial change.

Section 18—Safety Programs

§§ *55/56/57.18–2*

The proposed standard would have required a supervisor or another competent person to: inspect each active working area and installation at least once each shift for hazardous conditions, including conditions that may present an imminent danger; uniformly record any hazardous conditions observed including the date, location and description of the conditions and action taken, and, make the record available for review by the Secretary or his authorized representative. Because of the importance of this standard and the extensive debate it generated before the Advisory Committee, interested persons were requested in the notice of proposed rulemaking to submit specific comments including recommended wording for the standard [43 FR 40766–40767]. Numerous comments and objections were received, raising several important issues. These included the proposal was beyond the scope of the advisory standard; the term "hazardous conditions" was vague; the recordkeeping requirements were burdensome and possibly self-incriminating; the proposal represented a "general duty" standard; and the standard could be used to cite operators for violations covered by existing standards that would result in multiple citations for a single violation.

Changes have been made in the final standard to reflect the concerns raised by public comments. The final standard requires competent persons who are designated by the operator to examine each working place at least once each shift for conditions which may adversely affect safety or health. ("Competent persons" and "working place" are defined in 30 CFR 55/56/57.2 "Definitions".) The operator must initiate prompt corrective action. If the competent person finds conditions which may present an imminent danger, the operator must withdraw all persons until abatement. The operator must keep a record that the examinations were conducted. The record is to be kept for one year and is to be made available to the Secretary or his authorized representative. In response to the comments regarding recordkeeping, the recordkeeping requirements have been significantly reduced to include those records which are essential and necessary to the enforcement of the standard. The agency believes that by requiring regular close examination of the total mining environment, the final standard will better promote safety and health of affected miners.

The final standard is consistent with the basic concept of the proposed rule and will supplement existing standards requiring examinations of specific areas, conditions, equipment and machinery. The intention of both the advisory and proposed standards was to require, as part of a continually functioning and effective safety program, that the operator perform a regular examination of working areas and installations for hazards. Through the conduct of such a program, miners will be assured of a safer, and more healthful mine environment.

§§ *55/56/57.18–9*

The proposal stated that for the purpose of taking charge in the event of an emergency, a supervisor or designated competent person must be on the property while persons are working. Some comments expressed concern about the application of this standard to smaller operations. "Competent person," is defined in 30 CFR 55/56/57.2, "Definitions." The objective of the standard is to provide for active leadership in the event of an emergency. As a comment pointed out, MSHA's Training Regulations provide for instruction of miners in emergency procedures, and should alleviate any need for additional personnel to comply with the standard. Competent persons could be designated from among current employees, assuming they have been properly trained. The standard is promulgated with editorial changes.

§§ *55/56/57.18–13*

The proposal required a communications system at the mine site to summon emergency assistance. Several comments requested examples of "a suitable communication system." The term "suitable" is used to provide the operator with flexibility in choosing a means of communication appropriate for its operation. For a majority of mines, a telephone or a citizens' band radio would suffice to obtain assistance in the event of an emergency. The standard is promulgated with editorial changes.

Section 19—Man Hoisting

§§ *55/56/57.19–12*

The proposal stated that grooved drums must have grooves and pitch suited to the rope used. There were no comments received on this standard. The standard is promulgated as proposed.

§§ *55/56/57.19–35*

The proposal stated that headframe, shall be of substantial construction. One comment suggested requiring headframes construction to meet a safety factor equivalent to that of the hoist ropes to be used, with a minimum safety factor of four. Since mandatory standard 55/56/57.19–21 may require hoist rope safety factors as high as eight, the suggested wording would require some headframes to be constructed far in excess of reasonable design criteria. MSHA has revised the standard to reflect design criteria which consider the breaking strength of the hoist rope, wind loads and other dynamic loads.

§§ *55/56/57.19–36*

The proposal stated that clearance of headframes must allow for overtravel and safe stopping of the conveyance. One comment requested that a "grandfather clause" be added for

presently installed headframes. However, because clearance for overtravel and safe stopping is directly related to safety, compliance is considered essential for all conveyances. The standard is promulgated with the proposed language.

§§ *55/56/57.19–37*

The proposed standard required that fleet angles not be greater than 1½ degrees for smooth drums, and 2 degrees for grooved drums. A comment indicated that various conditions, such as property lines or existing buildings, may limit hoist locations so that fleet angles cannot meet the requirements of the standard. However, headframe height can be adjusted in order to obtain the required fleet angle. Therefore, if the distance between the headframe and the hoist is restricted by physical factors, the height of the headframe may be increased to minimize fleet angles. MSHA has revised the proposal by making the standard applicable to fleet angles on hoists installed after the effective date. The final standard will also apply to existing hoists that are moved to new locations after the standard becomes effective.

§§ *55/56/57.19–39*

The proposed standard provided that all man hoists, except emergency escape hoists, installed after the effective date of the standard shall have drums and sheaves of diameters at least 60 times the rope diameter. Comments suggested that the restrictive choice of a drum/sheave diameter to rope diameter ratio of 60 would eliminate small slow speed hoists used for transportation between raises and other similar mine hoist applications. Comments also stated that the proposed standard would inhibit innovative designs. The intent of the proposed standard is to enhance hoisting safety by reducing the degree of repetitive stresses and temperatures and therefore premature failures in hoist ropes. This may also be accomplished by limiting the hoist rope speed.

A survey of equipment in use has been conducted, and it has been generally found that hoists with drum/sheave diameter to rope diameter ratios smaller than the proposed 60 ratio may operate with equivalent safety provided that rope speed is not excessive. Therefore, the proposed standard is modified to allow the use of smaller diameter drums and sheaves provided the rope speed is 200 feet per minute or less. The 200 feet per minute rope speed was selected from a study of current equipment design parameters as a prudent value to provide equivalent safety to the 60 ratio. Most of the equipment addressed by the comments will meet this rope speed requirement. The proposed standard has been further modified to require a ratio of at least 80 for hoist ropes one inch in diameter and greater, a ratio of at least 60 for hoist ropes under one inch in diameter, and a ratio of at least 100 for all locked coil ropes. This modification to the standard is in accordance with paragraphs 4.1.3.1.1, and 4.3.3.2 of the ANSI M11–1–1979 Wire Ropes for Mines standard approved March 14, 1979, which represents the latest technology of wire rope manufacture and use. The MSHA standard allows the continued use of present equipment, but requires that all future installations meet the ANSI D/d Ratios for drums and sheaves except for escape hoists and those installations with rope speeds of 200 feet per minute or less.

§§ *55/56/57.19–67*

The proposal stated that during shift changes, an authorized person must be in charge of each man trip. One comment suggested that "authorized person" be changed to "competent person." MSHA believes it is essential that only "authorized" persons (those approved or assigned by the mine management) be in charge of trips when persons are hoisted. Another comment suggested limiting the application of the standard to trips in which at least ten persons are hoisted. MSHA disagrees. The protection afforded by the standard must be available to all persons. The standard imposes a minimum burden on mine operators considering the potential hazards involved. The proposed standard is made final with an editorial change for clarity.

§§ *55/56/57.19–72*

The proposal stated that when combinations of cages and skips are used in the same compartment, cages must be totally enclosed and hoist speed reduced to man-speed as defined in standard 57.19–61 but not to exceed 1,000 feet per minute. Additionally, muck must not be hoisted with miners during shift changes. Several comments objected to the term "totally enclosed." One comment stated that it is not practical to provide a totally enclosed cage and that folding mesh doors provide the protection needed for miners riding the cage. Another comment stated that the term "totally enclosed" would preclude having even a small aperture in the side of the cage for access to the shaft signaling system. MSHA did not intend for the word "totally" to preclude the use of non-solid materials to enclose cages. However, comments clearly indicate that confusion has resulted from the use of the word. Consequently, "totally" has been deleted from the standard. Non-solid materials, such as mesh-type doors, are acceptable if they protect personnel from flying materials. In other respects, the standard is promulgated as proposed.

§§ *55/56/57.19–74*

The proposal stated that persons must not ride on certain portions of shaft conveyances except for inspection and maintenance purposes and then only with suitable protection. There were no comments received on this standard and it is promulgated with an editorial revision.

§§ *55/56/57.19–81*

The proposal stated that when not in use conveyances controlled by hoistmen must be suitably positioned to prevent persons from boarding or loading. There were no comments received on this standard. The standard is promulgated with editorial changes.

§§ *55/56/57.19–91*

The proposal stated that hoistmen must accept instructions only by the regular signaling system unless it is out of order and only from an authorized person in an emergency. Comments requested a definition for the term "authorized person." This term is defined in 30 CFR 55/56/57.2 "Definitions." The standard is promulgated with a revision clarifying that an emergency situation is considered to exist when the regular signaling system is out of order.

§§ *55/56/57.19–93*

The proposal stated that each mine must use a standard code of hoisting signals, and that movement of the conveyance on a "one bell" signal is prohibited. Some comments expressed concern that the standard requires a national hoisting signal code. Other comments suggested that a code be adopted for each shaft and that the standard only apply to manually controlled hoists. The standard does not require a national hoisting signal code, and does not apply to automatic hoists. However, different signaling systems for each shaft of a particular mine could lead to confusion and shaft accidents. Therefore, this standard is intended to assure a single uniform code of hoisting signals in every shaft at a particular mine. The standard is promulgated with the proposed language.

§§ *55/56/57.19–104*

The proposal stated that suitable clearance at shaft stations must be provided and maintained to allow for the safe movement of persons, equipment and materials. Comments requested a definition for the word "suitable." "Suitable" is defined in 30 CFR 55/56/57.2, "Definitions." Because the configuration of shaft stations, even in the same shaft, can vary widely, "suitable" is used to provide flexibility in the application of the standard. The standard is promulgated with editorial revisions.

§§ *55/56/57.19–124*

The proposed standard prescribed the frequency of and methods for destructive testing of hoist ropes at the conveyance end of the ropes. Comments stated that the standard duplicates standards 55/56/57.19–20, 55/56/57.19–21, and 55/56/57.19–126, and that the requirement that a minimum six foot section of the rope be cut off is unnecessary and expensive. Standard 55/56/57.19–20 has been revoked by this rulemaking; mandatory standard 55/56/57.19–21 establishes criteria for the proper selection of ropes; and new mandatory standard 55/56/57.19–126 requires certain non-destructive tests. New mandatory standard 55/56/57.19–124 prescribes destructive tests for hoist ropes that do not duplicate the other standards. Moreover, a six foot length of rope is necessary for destructive tensile test evaluation, and little expense is saved by cutting a shorter section. Editorial changes have been made to clarify the standards.

§§ *55/56/57.19–125*

The proposal stated criteria for removing a section of the hoist rope at the drum end to distribute wear and guard against rope failure at stress points. A comment stated that periodic cutting at the drum end of wire ropes does not contribute to the "integrity of hoist ropes," and that new mandatory standard 55/56/57.19–126 and existing mandatory standard 55/56/57.19–128 adequately ensure the safe condition of wire ropes. The phrase "and to preserve the integrity of the rope" has been deleted. New mandatory standard 55/56/57.19–126 requires examinations and non-destructive tests at specified rope locations, whereas mandatory standard 55/56/57.19–128 prohibits the use of hoisting ropes that are considered unsafe. These standards are not duplicative of new mandatory standard 55/56/57.19–125, which requires periodic removal of a section of hoist ropes in order to distribute wear.

§§ *55/56/57.19–126*

The proposal stated that hoist ropes must be examined over their entire active lengths at least every month to evaluate wear and possible damage. One comment suggested that this standard be revoked because mandatory standards 55/56/57.19–21, 55/56/57.19–120, and 55/56/57.19–121 effectively cover the same subject matter. MSHA disagrees. Standard 55/56/57.19–21 establishes static load safety factors to be used for hoist rope selection and for determining when the ropes are to be removed from man hoists. Standard 55/56/57.19–126 does not address static load safety factors. Standard 55/56/57.19–120 requires that a systematic procedure for inspection, testing, and maintenance of shaft and hoisting equipment be developed and followed, and standard 55/56/57.19–121 requires that records of the above be kept. New mandatory standard 55/56/57.19–126, on the other hand, establishes a specific procedure for examining hoist ropes and evaluating wear and damage. When examinations reveal that a rope is worn, caliper measurements or non-destructive tests must be made at specified locations. This procedure is only part of the overall inspection, testing, and maintenance requirements of standards 55/56/57.19–120 and 55/56/57.19–121. The final standard is promulgated with editorial revisions for clarity.

§§ *55/56/57.19–130*

The proposal stated requirements for determining the unobstructed operation of conveyances before persons are hoisted. A comment points out that the proposal inadvertently stated that advisory standard 55/56/57.19–127 was revised and advisory standard 55/56/57.19–130 was revoked. MSHA has corrected the error. Standard 55/56/57.19–130 is promulgated with editorial revisions in the proposed language.

§§ *55/56/57.19–131*

The proposal stated that hoist conveyance connections must be inspected at least once during any 24-hour period that the conveyance is used to hoist persons. One comment stated that daily inspection of multiple rope systems is not necessary. While MSHA recognizes the increased reliability of multiple rope systems, as compared with conventional rope configurations, incidents have occurred where multiple rope terminations have failed concurrently. Additionally, some multiple rope terminations and cage suspension devices have single points of failure. Another comment suggested that the inspections be conducted on a weekly rather than daily basis. The requirement that inspections be performed daily is retained because the burden on operators is justified by the degree of risk posed by an accident involving a conveyance hoisting persons. Therefore, the standard is promulgated as proposed.

§§ *55/56/57.19–132*

The proposal stated that a performance drop test of hoist conveyance safety catches must be made at the time of installation or prior to installation in a mock-up of the actual installation, and that testing of safety catches must be made prior to use. A comment objected to the proposed frequency of testing and inspection of safety catches on hoist conveyances. Regular testing and inspection of safety catches is essential to safe hoisting activities and will not constitute a significant burden on the operator. Editorial revisions have been made in response to comments requesting that the standard be clarified.

Section 20—Miscellaneous

§ *57.20–32*

The proposal stated that a two-way communications system between the surface and underground must be provided with instructions on the cover or adjacent to the system, and that persons working underground must be instructed in the use of the equipment. Comments suggested that two-way communication equipment is unnecessary in underground stone quarries where workers have access to motorized vehicles which can be driven to all parts of the mine. However, the intent of the standard is to insure rapid and reliable communication in the event of an emergency. An emergency in an underground mine may involve conditions which preclude the use of motorized vehicles. The proposed standard also provided that persons working underground be instructed as to the proper use of the equipment. This requirement has been deleted from the final standard as it is covered by MSHA's Training Regulations. In addition, editorial changes were made in the final standard.

Section 21—Gassy Mines

§ *57.21–49*

The proposal stated that brattice cloth must be flame-resistant. There were no comments received on this standard.

and it is promulgated with the proposed language.

§ *57.21–51*

The proposal stated the requirements for ventilation of abandoned workings in unsealed underground sections. There were no comments received on this standard, and it is promulgated with the proposed language.

§ *57.21–65*

The proposal stated that every seven days the foreman or his competent designee must perform a safety inspection, and test for methane and carbon monoxide at specified locations. One comment objected to testing for carbon monoxide and methane in underground hardrock mines since these gases are rarely present. MSHA feels that the magnitude of the hazards which may result from the presence of these gases in mines that are classified as "gassy mines" justifies the requirement of weekly tests. Consequently, the standard is promulgated with editorial changes.

C. Discussion and Summary of Revocations

Section 3—Ground Control

§§ *55/56/57.3–7*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The standard recommended that suitable barriers be provided where movement of materials into cuts constitutes a safety hazard. The hazards which can result from the movement of materials into cuts are covered by existing mandatory standards. Standard 55/56/57.3–2 states that loose, unconsolidated materials shall be stripped for a safe distance from the top of the pit or quarry walls, and the loose, unconsolidated material shall be sloped to the angle of repose. Standard 55/56/57.3–5 states that overhanging banks shall be taken down immediately and other unsafe ground conditions corrected promptly, or the areas shall be barricaded and posted. Additional protection from falling materials is provided by new mandatory standard 55/56/57.14–11, which requires protection against flying or falling materials, and standard 55/56/57.14–13, which requires that certain equipment be provided with canopies when necessary to protect the operator.

§§ *55/56/57.3–10*

The proposed rule is withdrawn and the advisory standard revoked. The proposal, based upon the advisory standard, stated that mine property which slopes into working areas must be examined whenever weather conditions could create a hazard; if dangerous ground is detected, persons must be evacuated from the affected area.

Comments stated that the proposed standard was vague and ambiguous and that other standards in 30 CFR 55/56/57.3, "Ground control," addressed the hazards which could result from loose ground caused by adverse weather conditions. MSHA agrees. Mandatory standard 55/56/57.3–1 provides that mining methods be selected which ensure pit wall and bank stability, and that standards for safe control of pit walls be established and followed by operators. Mandatory standards 55/56/57.3–8 and 55/56/57.3–9 require that supervisors or designated competent persons and miners examine working areas or faces for unsafe conditions, and that any unsafe condition found be corrected. In addition, training in ground control and hazard recognition is provided in MSHA's Training Regulations. Because coverage is afforded by other standards, including those mentioned above, advisory standard 55/56/57.3–10 is revoked.

§§ *55/56/57.3–13*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard suggested using rock-bolt installations recommended by MSHA or another competent agency. Standards 57.3–33 and 55/56/57.3–53 through 55/56/57.3–58 provide specific criteria for rock-bolt installations.

§ *57.3–21*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. This advisory standard recommended that miners be trained in the proper methods of testing for, taking down, and supporting loose ground. Training in roof and ground control is required by MSHA's Training Regulations.

§ *57.3–28*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. This standard recommended supporting ground near the bottom of a shaft during shaft sinking operations. Mandatory standard 57.3–20 requires that ground support be consistent with the nature of the ground and the mining method used. Consequently, appropriate ground support must be installed when necessary during shaft sinking to prevent falls of ground from the shaft's sides.

§ *57.3–30 and* § *57.3–31*

As recommended by the Advisory Committee and proposed by MSHA, these standards are revoked. They recommended that rock-bolt installations provide safe and effective ground support, and that rock-bolting materials comply with the standards of the United States of America Standards Institute. Standards 57.3–33 and 57.3–53 through 57.3–58 provide specific criteria for rock-bolt installations.

Section 4—Fire Prevention and Control

§§ *55/56/57.4–17*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended covering floors around drip pans with suitable noncombustible material. New mandatory standard 55/56/57.4–16 covers the hazards addressed in this advisory standard by providing that floor areas where drip pans are used be cleaned immediately after spills.

§§ *55/56/57.4–30*

Proposed standard 55/56/57.4–30 stated that employees shall be trained in the use of fire extinguishers. MSHA agrees with comments that MSHA's Training Regulations, which require that miners be trained in fire fighting procedures, adequately provide for instruction in the use of fire extinguishers. Therefore, the standard is revoked.

§ *57.4–56*

It was proposed to revise and divide advisory standard 57.4–56 into two standards, 57.4–56A and 57.4–56B. Proposed standard 57.4–56A would have established detailed criteria for "permanent combustible liquid storage depots" while proposed standard 57.4–56B would have established detailed criteria for "temporary combustible liquid storage depots." The original advisory standard stated that oil or fuel storage areas should not be located in main ventilation airways. The advisory standard is revoked, and the proposed standards 57.4–56A and 57.4–56B are withdrawn.

The main objection in the numerous comments received on the proposed standards was that the terms "permanent combustible liquid storage depots" and "temporary combustible liquid storage depots" were not defined. MSHA is withdrawing the proposed standards for further study which will include development of definitions for the above terms as well as definitions for the terms "combustible liquid" and

"designated underground fire area." The latter two terms were used in the proposals. However, MSHA has withdrawn the proposed definitions for these terms.

In reviewing the proposed rule, MSHA considered the alternative of making the advisory standard mandatory by changing "should" to "shall." The resulting standard, however, would have been overly restrictive. MSHA recognizes that oil or fuel can be stored safely in main ventilation airways if proper precautionary procedures are followed. For instance, operators must comply with existing standards 57.4–4 and 57.4–54, two standards which regulate the storage of oil and fuel underground. Standard 57.4–4 states that flammable liquids shall be stored according to the standards of the NFPA or other approved agencies. Small quantities of flammable liquids drawn from storage shall be kept in appropriately labeled "safety cans" (defined in 30 CFR 57.2, "Definitions"). Standard 57.4–54 requires that oil, grease, or diesel fuel stored underground be kept in tightly sealed containers in fire-resistant areas, at safe distances from explosives' magazines, electrical installations, and shaft stations. MSHA intends to engage in the further study of the hazards related to the underground storage of combustible and flammable liquids and materials. This includes further study of the concepts contained in proposed standard 57.4–87 which was also withdrawn because of its relationship with proposed standards 57.4–56A and 57.4–56B. Proposed standard 57.4–87, applicable to underground installations, dealt with facilities in which less than 55 gallons of combustible liquids or flammable materials are stored.

§ *57.4–60*

The proposed standard stated that power conductors had to be deenergized on idle shifts or idle days. The proposed rule is withdrawn and the advisory standard revoked because the primary hazards addressed by the standard are adequately covered by mandatory standard 57.4–11, requiring that abandoned electrical circuits be deenergized; 57.12–16, requiring that electrical equipment be deenergized before work is done on the equipment; and 57.12–17, requiring that power circuits be deenergized before work is done.

§ *57.4–64*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that air lines in timbered mines should be readily convertible to water lines unless the air lines are parallel to water lines. MSHA recognizes that at times conversions can cause breaks in lines, can starve certain levels in the mine of air, and can jeopardize lives where compressed air is used in a refuge area or refuge chamber.

§ *57.4–68*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard provided that mines which do not maintain individual mine rescue stations should affiliate with central or cooperative mine rescue stations. Regulations covering the availability of mine rescue teams were proposed as 30 CFR Part 49 on January 5, 1979 (44 FR 1539). The advisory standard presented one of several mine rescue options under consideration by the agency.

§ *57.4–71*

The proposal stated that mine rescue crews must include supervisory and key personnel familiar with all mine installations. This standard is revoked. However, mine rescue team regulations being developed by the agency will contain provisions regarding the composition of mine rescue teams, the qualifications of their members, and the requirements for training.

Section 5—Air Quality, Ventilation, Radiation, and Physical Agents

§ *57.5–21*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that main fans be installed on the surface. If main fans must be located underground, the standard recommended that the fans be in fire-resistant areas and provided with remote controls. The standard is revoked because protection is afforded by standards such as: standard 57.5–18F, which requires that main fans be provided with remote controls; standard 57.5–22, which requires that fan housings and air ducts connecting main fans to underground openings be fire-resistant; and standards 57.4–42 and 57.5–18B, which place restrictions upon the types and amounts of combustible materials that are permitted within prescribed distances of main fans. There will be no requirement that main fans be installed on the surface because, in certain instances, it is necessary to locate main fans underground in order to protect them from harsh environmental surface conditions.

§ *57.5–23*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that separate mine openings should be provided for main intake and return air currents. MSHA recognizes that separate mine openings for intake air and return air may be impossible during the early stages of development when sinking a single shaft, and that separation of intake air and return air may be provided in single shaft mines by partitioning the shaft with appropriate noncombustible material. MSHA will reexamine the issues raised by advisory standard 57.5–23.

§ *57.5–26*

As recommended by the Advisory Committee and proposed by MSHA this standard is revoked. The advisory standard recommended that instruments be provided to test the mine atmosphere for gases that occur in the mine, and that tests be conducted as often as necessary to maintain the required air quality. Mandatory standards 57.5–1 and 57.5–2 establish air quality criteria that must be complied with regardless of the method or frequency of testing.

Section 6—Explosives

§§ *55/56/57.6–3*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard provided that blasting agents could be stored with other explosives in the same magazine. Since blasting agents do not require the same measure of protection in storage as do explosives, it is not mandatory that they be stored in magazines. However, mandatory standard 55/56/57.6–8 requires that when ammonium nitrate fuel oil blasting agents are stored in the same magazine with other explosives, safety fuse, or detonating cord, they shall be physically separated from the other stored materials. In addition, they must be stored in such a manner that oil does not contaminate the other explosives, safety fuse, or detonating cord.

§§ *55/56/57.6–4*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard permitted safety fuse or detonating cord to be stored with explosives in the same magazine. MSHA has no objection to the storage of safety fuse or detonating cord in the same magazine with explosives. However,

when safety fuse or detonating cord is stored in the same magazine with ammonium nitrate fuel oil blasting agents, the requirement of mandatory standard 55/56/57.6–8 must be met.

§ *57.6–28*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard contained provisions regarding box-type underground distribution storage magazines. Mandatory standards, such as standards 57.6–1 and 57.6–27, already cover the storage of explosives and detonators.

§ *57.6–78*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that cars containing explosives or detonators should be pulled, except when hand-trammed. MSHA recognizes that if the standard were made mandatory and cars containing explosives or detonators had to be "pulled" under all circumstances (except when hand-trammed), persons might be unnecessarily exposed to danger.

§ *57.6–181*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that where electric blasting is to be performed, electric circuits should be deenergized before explosives or detonators are brought into the area. The hazard of premature detonation of electric blasting devices by stray currents is addressed by mandatory standard 57.6–126 (formerly 57.6–170).

§§ *55/56/57.6–190*

This standard is revoked. The proposed standard would have required that ammonium nitrate blasting agents (ANFO) be mixed and stored in accordance with the Department of the Interior's Bureau of Mines Information Circular 8179, entitled "Safety Recommendations for Sensitized Ammonium Nitrate Blasting Agents" (1963). IC 8179 was incorporated by reference in the proposal.

Since the publication of IC 8179, MSHA has developed new mandatory standards for metal and nonmetal mines which are not in total accord with all of the material contained in the Bureau of Mines document. MSHA is currently working with the Bureau of Mines to study the hazards related to the mixing and storage of all blasting agents, and to develop appropriate guidelines governing this area.

In the interim, protection is provided by an interagency agreement with the Department of the Treasury's Bureau of Alcohol, Tobacco and Firearms (BATF), whereby MSHA performs inspections for BATF using that agency's explosive materials storage requirements.

§§ *55/56/57.6–192*

It was proposed to revoke this advisory standard which recommended that adequate priming should be used to safequard against misfires, toxic fumes and poor performance. Adequate priming depends upon factors that vary with each blasting operation. Some of these factors are the location of blasting, the pattern of blasting, the force of detonation, and the type and amount of explosives and blasting agents used. The type and amount of priming are decisions which are based on sound technical judgments and experience, and adapted to local conditions. Therefore, the advisory standard is revoked.

§§ *55/56/57.6–196*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that reasonable precautions should be exercised to exclude water from blasting agents other than slurries. Current blasting technology, including dry-type blasting agents in waterproof containers and slurry-type blasting agents which include water, makes this standard obsolete.

Section 7—Drilling

§§ *55/56/57.7–1*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that equipment which is to be used during a shift should be inspected each shift and that equipment defects affecting safety should be reported. This protection is provided by other standards including the following: mandatory standard 55/56/57.7–2 requires that drilling equipment defects affecting safety must be corrected before the equipment is used; mandatory standard 55/56/57.14–26 requires the immediate removal from service of unsafe equipment or machinery; and new mandatory standard 55/56/57.18–2 requires that a competent person designated by the operator examine each working place at least once each shift for conditions which may adversely affect safety or health.

§§ *55/56/57.7–14*

The advisory standard is revoked. The proposed standard would have required that persons operating or working near drilling machines be instructed in the safe operation of jackhammers, jackleg drills, or other drilling machines, and the potential hazards involved in their use. Several comments indicated that this standard was duplicative of MSHA's Training Regulations. MSHA agrees and the standard is revoked.

§§ *55/56/57.7–16*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that bit wrenches or bit knockers should be used to remove detachable bits from drill steel. New mandatory standard 55/56/57.14–36 covers the hazards addressed by the advisory standard in that it prohibits the use of tools and equipment beyond the design capacity intended by the manufacturer where such use may create a hazard to personnel. Standard 55/56/57.14–36 requires that only appropriate tools be used to remove detachable bits from drill steel.

§§ *55/56/57.7–17*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that starter steels should be used when collaring holes with hand-held drills. MSHA recognizes that the length and size of steel needed to collar holes varies depending on the conditions encountered in a specific situation.

§ *57.7–25*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The Advisory Committee consolidated this standard with advisory standard 57.7–14. Standard 57.7–14 is revoked because its requirements are covered by MSHA's Training Regulations.

§ *57.7–26 and* § *57.7–27*

These advisory standards are revoked because their requirements are consolidated in new mandatory standard 55/56/57.7–52.

§ *57.7–29*

The advisory standard is revoked because its requirements are consolidated in new mandatory standard 55/56/57.7–53.

§ *57.7–30*

The advisory standard is revoked because its requirements are

consolidated in new mandatory standard 55/56/57.7–50.

Section 9—Loading, Hauling, Dumping

§§ *55/56/57.9–8*

As recommended by the Advisory Committee and propose by MSHA, this standard is revoked. The advisory standard recommended that adequate protection be provided at dumping locations. Protection is afforded by such standards as new mandatory standard 55/56/57.14–11, which requires the use of guards, shields, or other suitable protection where flying or falling materials present a hazard to personnel.

§§ *55/56/57.9–18*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that dust control measures should be taken where dust significantly reduces the visibility of equipment operators. New mandatory standard 55/56/57.9–74 (formerly advisory standard 55/56/57.5–4) covers the hazards addressed by advisory standard 55/56/57.9–18 by requiring dust to be suitably controlled at muck piles, material transfer points, crushers, and on haulage roads where hazards to personnel may be created as a result of impaired visibility.

§§ *55/56/57.9–29*

The proposal would have required operators to sit facing the direction of travel while operating equipment with dual controls. The advisory standard is revoked. Comments stated that equipment design may require operators to sit sideways or to stand, both of which would be prohibited by the proposed standard. MSHA recognizes that it is not always possible or practical to sit facing the direction of travel while operating equipment with dual controls; however, it is essential for safety that operators be provided with a clear and unobstructed view of the path of travel. Mobile equipment operators are already required by mandatory standard 55/56/57.9–24 to have full control of equipment while it is in motion. In addition, mandatory standard 55/56/57.9–5 requires that operators shall be certain, by signal or other means, that all persons are clear before starting or moving equipment.

§§ *55/56/57.9–81*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that trucks, shuttlecars, and front end loaders should be equipped with emergency brakes separate and independent of the regular braking system when generally available. Most emergency braking system utilize some part of the primary braking system. A second braking system that is totally independent of the primary braking system, which would have been required had the standard been made mandatory, is not "generally available."

§§ *55/56/57.9–82*

The proposal stated that persons working in enclosed production equipment cabs where extreme weather and environmental conditions exist shall be protected by air conditioning or a heater with defroster, or both. Comments expressed concern that since the phrase "extreme weather and environmental conditions" is vague and undefined, operators have no guidance as to when the standard applies to their mining operations. To further understand the precise nature and impact of the potential hazards covered by the proposed standard, MSHA intends to participate in the research now being conducted by other governmental agencies in this area. Together with the National Institute for Occupational Safety and Health and the Occupational Safety and Health Administration, MSHA believes that a meaningful program of protection can be developed to minimize injuries and illnesses caused by conditions which produce heat stress and other related medical problems. The proposed standard is withdrawn for further study.

Section 11—Travelways and Escapeways

§§ *55/56/57.11–8*

The proposal would have required ladderways, stairways, walkways, ramps and platforms to be kept free of material which could cause stumbling or slipping hazards. Several comments stated that it is impractical to keep all travel areas completely free of material. In addition, they stated that a number of mandatory standards address the hazards of stumbling or slipping which can result from loose rock and extraneous materials. MSHA agrees. For example, standard 55/56/57.9–34 requires that haulage equipment be loaded in a manner to minimize spillage during haulage. A safe means of access to all working places is required by standard 55/56/57.11–1. Standard 55/56/57.11–2 requires that crossovers, elevated walkways, elevated ramps, and stairways be maintained in good condition. Standard 55/56/57.11–16 requires that regularly used walkways and travelways be sanded, salted, or cleared of snow and ice as soon as practicable. Standard 55/56/57.20–3 requires that the floor of every working place and all passageways be kept clean and orderly, and that passageways be kept free from protruding nails, splinters, or loose boards. Based on the comments and the protection afforded by the above standards, advisory standard 55/56/57.11–8 is revoked.

§§ *55/56/57.11–15*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended using cleats and handrails, or ropes, or both on slippery walkways. The hazards created by slippery walkways are already addressed by several standards. For example, standard 55/56/57.11–1 requires that a safe means of access be provided and maintained to all working places. Standard 55/56/57.11–2 requires that elevated walkways and ramps and stairways be provided with handrails, and, where necessary, toeboards. Standard 55/56/57.11–16 requires that regularly used walkways be sanded, salted, or cleared of snow or ice as soon as practicable.

§ *57.11–35*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended using flexible ladders only where rigid ladders may be impractical. The advisory standard is revoked because 30 CFR 57.11, "Travelways and Escapeways," contains numerous standards relating to the construction of ladders and appropriate work practices.

§ *57.11–39*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that working floors in square-set stopes should be lagged closely and securely, and open sets should be equipped with guardrails. The hazards inherent to working floors in square-set stopes are adequately covered by existing standards such as the following: standard 55/56/57.11–1, which requires that a safe means of access be provided and maintained to all working places; standard 55/56/57.11–2, which requires that crossovers, elevated walkways, elevated ramps and stairways be of substantial construction, provided with handrails, and maintained in good condition; and standard 55/56/57.11–12, which requires that openings above, below, or near

travelways through which material may fall be protected by railings, barriers or covers.

Section 12—Electricity

§§ *55/56/57.12–24*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that reverse-current protection should be provided at storage-battery charging stations. Standard 55/56/57.12–2, which requires switches and controls of approved design and construction on electric equipment and circuits, provides reverse-current protection.

§§ *55/56/57.12–29*

The proposal would have required that electric equipment and wiring be inspected by a competent person as necessary to assure safe operating conditions. Many comments suggested this standard be revoked. They stated that the standard was unnecessary, vague, and redundant, and that unsafe conditions relating to electrical equipment were already addressed by the comprehensive standards of 30 CFR 55/56/57.12, "Electricity." Standard 55/56/57.12–30, for example, requires that potentially dangerous conditions be corrected before equipment or wiring is energized. In response to these comments, the advisory standard is revoked.

§§ *55/56/57.12–31*

The proposal would have required that electric circuits and equipment be designed, constructed, installed and maintained to prevent injury and safeguard personnel. It would have replaced an advisory standard recommending dust-tight and water-tight construction of electric motors, controls, and switches where the environment exposed the equipment to damaging dust and water. Both the advisory and proposed standards were intended to require that electric equipment be suited for the environment in which it operates. Comments suggested that the proposal would have been a general duty requirement, was too vague and too broad to be enforceable, and generally covered by existing agency standards. Upon review, MSHA believes that the hazards associated with electrical circuits and equipment are adequately covered by standards such as the following: standard 55/56/57.12–2, which requires switches or controls to be of approved design and construction and properly installed; standard 55/56/57.12–30, which requires potentially dangerous conditions to be corrected before equipment or wiring is energized; standard 55/56/57.12–40, which requires operating controls to be installed to operate without danger of contact with energized conductors; and standard 55/56/57.12–41, which requires switches and starting boxes to be of safe design and capacity. Therefore, the advisory standard is revoked.

§§ *55/56/57.12–44*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that lightning arrestor grounds be connected to earth at least 10 feet from the track or mine return circuit. Mandatory standards, such as standards 55/56/57.12–69 and 55/56/57.12–65, already provide for the proper grounding and use of lightning arrestors.

§§ *55/56/57.12–49*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that persons not stand the ground in the vicinity of an electrically powered shovel or similar heavy equipment during an electrical storm. The advisory standard is revoked because hazard recognition training is required by MSHA's Training Regulations.

§§ *55/56/57.12–51*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that trolley-wire hangers be spaced so that the wire would not sag dangerously and so that the wire could be detached from any hanger without creating a shock hazard. Prevention of trolley-wire sway and sag is required by new mandatory standard 55/56/57.12–50. Protection from the shock hazard of low hanging trolley wires is provided by new mandatory standard 55/56/57.12–50, and mandatory standards 55/56/57.12–16, 55/56/57.12–17 and 55/56/57.12–30.

§§ *55/56/57.12–52*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that trolley wires and trolley-feeder wires be provided with sectioning switches. Protection in this regard is provided by such mandatory standards as standard 55/56/57.12–2, which requires switches or other controls of approved design and construction on electrical equipment and circuits, including trolley wires and trolley-feeder wires.

§§ *55/56/57.12–54*

The proposed standard stated that persons shall be instructed to carry tools and supplies so they will not come in contact with bare power conductors. The advisory standard is revoked because of the coverage provided by MSHA's Training Regulations.

§ *57.12–87*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that not more than five splices should be made in any trailing cable unless they were vulcanized. Proper splicing methods are set forth in such standards as mandatory standard 57.12–13 and new mandatory standard 57.12–88.

Section 13—Compressed Air and Boilers

§§ *55/56/57.13–13*

The proposal stated that accumulations of water and oil must be drained from compressed-air receivers at least once each day by the compressor operator. Several comments pointed out that although the periodic draining of water and oil required by the proposed standard is a good maintenance practice, it is unrelated to safety. MSHA concurs, and the advisory standard is revoked.

§§ *55/56/57.13–14*

The proposal provided that compressed-air receivers must have inspection openings, and that tanks over 36 inches in diameter must have inspection openings sufficient to permit entry by persons. MSHA agrees with comments that the size of inspection openings in compressed-air receiver tanks is an engineering design feature related to maintenance only. In response to these comments, the advisory standard is revoked.

§§ *55/56/57.13–16*

The proposal stated that compressors must be operated and lubricated in accordance with the manufacturer's recommendations. Comments pointed out that this standard relates primarily to maintenance and not to personnel safety. MSHA concurs, and the standard is therefore revoked.

§§ *55/56/57.13–18*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The standard recommended that safety devices on compressed air systems should be checked daily. Examination of these safety devices is required by the

inspection criteria of new mandatory standard 55/56/57.13–15.

§§ *55/56/57.13–31, 55/56/57.13–32, 55/56/57.13–33, and 55/56/57.13–34*

As recommended by the Advisory Committee and proposed by MSHA, these standards are revoked. The advisory standards recommended that boilers should be: equipped with automatic pressure-relief valves (55/56/57.13–31); provided with safety devices to protect against hazards of flameouts, fuel interruptions, and low water level (55/56/57.13–32); equipped with blowoff valves piped outside the building with outlets so located that persons will not be scalded (55/56/57.13–33); and inspected internally at least once a year (55/56/57.13–34). All these items are contained within the ASME Boiler and Pressure Code, 1977, published by the American Society of Mechanical Engineers and the National Board Inspection Code, 1979, published by the National Board of Boiler and Pressure Vessel Inspectors, both of which are incorporated in new mandatory standard 55/56/57.13–30.

Section 14—Use of Equipment

§§ *55/56/57.14–4*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that openings where conveyors pass through walls or floors be guarded. Adequate protection in this regard is provided by existing standards. For example, mandatory standard 55/56/57.11–12 requires that openings above, below, or near travelways through which persons or materials may fall be protected by railings, barriers, or covers. Standard 55/56/57.11–12 further requires that where it is impractical to install such protective devices, adequate warning signals shall be installed.

§§ *55/56/57.14–5*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that protruding set screws of revolving parts should be guarded. The hazards created by protruding set screws on revolving parts are covered by such mandatory standards as standard 55/56/57.14–1, which requires guards on exposed moving machine parts.

§§ *55/56/57.14–25*

The proposed standard would have required pre-shift inspections of "machinery or equipment" and the correction of defects before the machine or equipment could be used. Certain machinery and equipment (e.g., main fans and conveyor belts) may be located in remote areas, thereby making it impractical to inspect them at the beginning of each shift. Several comments stated that the proposed standard duplicates other standards. They noted that the repair requirements of the proposed standard are unnecessary since mandatory standard 55/56/57.14–28 already requires that unsafe equipment or machinery be removed from service immediately. MSHA concurs with these comments, and with additional comments indicating that specific inspection requirements already exist in a number of standards. For example, new mandatory standard 55/56/57.9–1 requires that self-propelled loading, hauling and dumping equipment that is to be used during a shift be inspected before being placed in operation. In response to comments and because of the protection afforded by new and existing standards, the advisory standard is revoked.

§§ *55/56/57.14–28*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that adequate clearance be provided at machine installations. Protection is afforded by mandatory standard 55/56/57.11–1, which requires a safe means of access to all working places, including machine installations.

Section 15—Personal Protection

§§ *55/56/57.15–8, 55/56/57.15–9, 55/56/57.15–10, 55/56/57.15–11 and 55/56/57.15–13*

The five standards in this section concerning clothing, gloves, finger rings, and seat belts are revoked. MSHA intends to conduct a study of the injuries and associated hazards covered by these advisory standards. Where appropriate, the agency will propose new mandatory standards to address these areas of personal protection.

Section 16—Material Storage and Handling

§§ *55/56/57.16–8*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard, which recommended that taglines be attached to suspended materials, is revoked because its requirements have been consolidated with those of new mandatory standard 55/56/57.16–7.

Section 18—Safety Programs

§§ *55/56/57.18–1*

The proposal stated that a definite, effective and functioning safety program shall be established and that personnel shall actively participate in the program. Several comments stated that this standard should be revoked because MSHA's Training Regulations respond to the need for effective safety programs at metal and nonmetal mines. The Training Regulations provide for specific safety instruction for both new and experienced miners in such areas as first aid, use of equipment, and hazard recognition. These regulations also require that training be periodic, thereby assuring that the training program will be "continually functioning." MSHA concurs with these comments, and the standard is revoked.

§§ *55/56/57.18–3*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard addressed the investigation of serious accidents and the keeping of records regarding the investigation. Existing regulations in 30 CFR Part 50, "Notification, Investigation, Reports and Records of Accidents, Injuries, Illnesses, Employment, and Coal Production in Mines," cover these areas.

§§ *55/56/57.18–4*, §§ *55/56/57.18–5, and* §§ *55/56/57.18–7*

As recommended by the Advisory Committee and proposed by MSHA, these standards are revoked. The advisory standards contained recommendations regarding the education and training of miners. These issues are covered in MSHA's Training Regulations.

§§ *55/56/57.18–8*

The proposal stated that each active working place shall be visited by a supervisor or other designated competent person. Comments indicated that the standard as proposed was vague and imposed upon operators a general duty "to assure that work is being done in a safe manner." The standard is revoked in response to these comments and because specific inspection requirements are contained in other standards, such as mandatory standard 55/56/57.3–8.

§§ *55/56/57.18–11*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended training in accident prevention. MSHA's Training

Regulations provide for such instruction and training.

§ *57.18–26*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard dealt with the resumption of mining activities following an event which "caused or can cause widespread unsafe conditions." The standard is revoked because 30 CFR Part 50, "Notification, Investigation, Reports and Records of Accidents, Injuries, Illnesses, Employment, and Coal Production," and the enforcement provisions of the Mine Act provide for the closing of unsafe mining operations.

Section 19—Man Hoisting

§§ *55/56/57.19–20*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that the United States of America Standards Institute specifications cited in "Wire Ropes for Mines", M11.1–1960, be used as a guide in selection, installation, and maintenance of wire ropes used for hoisting. These issues are covered by existing or new mandatory standards. Existing mandatory standard 55/56/57.19–21 and new mandatory standard 55/56/57.19–39 provide criteria for the selection of the correct wire rope for use on man hoists. Mandatory standard 55/56/57.19–24 provides requirements for the proper connection of wire rope to the load. Mandatory standard 55/56/57.19–123 concerns maintenance of wire ropes. Mandatory standards 55/56/57.19–124, 55/56/57.19–125 and 55/56/57.19–126 contain inspection requirements for wire ropes.

§§ *55/56/57.19–25*

The proposed standard stated that wire ropes must be used and maintained in accordance with the manufacturer's recommendations or the equivalent. The advisory standard suggested that new ropes be broken-in accordance with the manufacturer's recommendations. This standard is revoked because of the coverage provided by other standards in 30 CFR 55/56/57.19, "Man hoisting." For example, mandatory standard 55/56/57.19–123 provides that wire ropes be lubricated or treated with dressing as recommended or approved by the rope manufacturer. New mandatory standards 55/56/57.19–124, 55/56/57.19–125 and 55/56/57.19–126 contain requirements for the periodic inspection and testing of wire ropes.

§§ *55/56/57.19–127*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard suggested that electromagnetic or other non-destructive rope testing systems be used only as supplements to recommended inspection and tests. The advisory standard is revoked because MSHA's current requirements and procedures for rope testing are already contained in existing or new mandatory standards.

Section 20—Miscellaneous

§§ *55/56/57.20–4*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that men should not engage in horseplay. MSHA believes that miner education and training is the most effective method for encouraging and promoting safety through proper personal conduct. MSHA's Training Regulations provide for instruction concerning safe work practices.

§§ *55/56/57.20–6*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that protruding nails which may cause injury be removed or completely bent over. The hazard of protruding nails is covered by mandatory standard 55/56/57.20–3(c) which requires that every floor, working place, and passageway be kept free from protruding nails, splinters, holes, or loose boards.

§§ *55/56/57.20–7*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard stated that employees should constantly be alert to the potential of accidents on their jobs. Education and training of miners in hazard recognition and accident prevention are required by MSHA's Training Regulations.

Section 21—Gassy Mines

§ *57.21–37*

As recommended by the Advisory Committee and proposed by MSHA, this standard is revoked. The advisory standard recommended that electrically operated pumps, compressors, and portable substations be in intake air. The hazards associated with the operation of electrical equipment in air containing gases are addressed by existing mandatory standards. For example, mandatory standard 57.21–78 allows only permissible equipment maintained in permissible condition in places where dangerous quantities of flammable gases are present or may enter the air current.

Drafting Information

The principal persons responsible for drafting this rulemaking document are: Roy L. Bernard, Deputy Administrator for Metal and Nonmetal Mine Safety and Health, and Herbert P. LeVan and Richard Zeutenhorst, Office of Standards, Regulations and Variances, MSHA; and Bernard R. McGuire and Arlene Celotto, Attorney-Advisors, Division of Mine Safety and Health, Office of the Solicitor, Department of Labor.

Regulatory Analysis

It has been determined that a regulatory analysis is not required for this rule under the Department of Labor's final guidelines for implementing Executive Order 12044 (44 FR 5570, January 26, 1979).

It is estimated that the total cost of compliance with the standards contained in this rule for all metal and nonmetal mining industries will be approximately 92 million dollars during the first year. A full assessment of the economic effects of the final rule has been made by MSHA, and is available to the public.

Dated: August 8, 1979.

Robert B. Lagather,

Assistant Secretary for Mine Safety and Health.

PART 55—HEALTH AND SAFETY STANDARDS—METAL AND NONMETAL OPEN PIT MINES

Part 55, Subchapter N, Chapter I, Title 30, Code of Federal Regulations is amended and revised as follows:

§ 55.3 [Amended]

A. Section 55.3 "Ground control" is amended as follows:

1. Advisory standards 55.3–7, 55.3–10, and 55.3–13 are revoked, standard numbers 55.3–7, 55.3–10, and 55.3–13 are reserved, and reserved standard numbers 55.3–11 and 55.3–14 through 55.3–49 are revised as follows:

55.3–7 [Reserved]

* * * * *

55.3–10 and 55.3–11 [Reserved]

* * * * *

55.3–13 through 55.3–49 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.4 [Amended]

B. Section 55.4 "Fire prevention and control" is amended as follows:

1. Advisory standard 55.4–3 is revised and made mandatory as follows:

55.4–3 *Mandatory.* Areas surrounding electric substations and unburied tanks used for the storage of flammable or combustible liquids shall be free of combustible materials (including dry vegetation) for a distance of at least 25 feet.

2. Advisory standard 55.4–5 is revised and made mandatory as follows:

55.4–5 *Mandatory.* Effective February 13, 1980, fixed unburied tanks used for the storage of flammable or combustible liquids shall be securely mounted on firm foundations. Where necessary to prevent leaks caused by tanks settling, piping shall be provided with flexible connections or other special fittings.

3. Advisory standard 55.4–7 is revised and made mandatory as follows:

55.4–7 *Mandatory.* Means shall be provided to remove or control spilled flammable or combustible liquids.

4. Advisory standard 55.4–49 is revised, renumbered, and made mandatory as follows:

55.4–12 *Mandatory.* All flammable and combustible waste materials, grease, lubricants or flammable liquids shall not be allowed to accumulate where they can create a fire hazard.

5. Advisory standard 55.4–13 is revised and made mandatory as follows:

55.4–13 *Mandatory.* In areas where materials such as oily waste or oily rags create a fire hazard, the materials shall be placed in covered metal containers until disposed of properly.

6. Advisory standard 55.4–16 is revised and made mandatory as follows:

55.4–16 *Mandatory.* Drip pans shall be provided to catch leakage or spillage whenever combustible or flammable liquids are dispensed in a place or manner which may create a fire hazard. Floor areas where drip pans are used shall be cleaned immediately after spills.

7. Advisory standard 55.4–17 is revoked and standard number 55.4–17 is reserved as follows:

55.4–17 [Reserved]

8. Advisory standard 55.4–25 is revised and made mandatory as follows:

55.4–25 *Mandatory.* Effective February 13, 1980, whenever fire hydrants are used, they shall be provided with—

(a) Uniform fittings;

(b) Readily available wrenches or keys to open the valves; and

(c) Readily available adapters that connect hydrant fittings to the hose equipment of local fire departments.

9. Advisory standard 55.4–26 is revised and made mandatory as follows:

55.4–26 *Mandatory.* Water pipes, valves, outlets, hydrants, and hoses designated for fire fighting purposes shall be inspected every 90 days and tested annually.

10. Advisory standard 55.4–39 is revised, renumbered, and made mandatory as follows:

55.4–27 *Mandatory.* Whenever self-propelled mobile equipment is used, such equipment shall be provided with a suitable fire extinguisher readily accessible to the equipment operator.

11. Advisory standard 55.4–30 is revoked.

12. Standard number 55.4–39 of action B(10) above is replaced with a series of numbers 55.4–39A through 55.4–39Z, and numbers 55.4–39C through 55.4–39Z are reserved as follows:

55.4–39C through 55.4–39Z [Reserved]

13. Advisory standard 55.4–6 is revised, renumbered, and made mandatory as follows:

55.4–39A *Mandatory.* Effective February 13, 1980, storage buildings or rooms in which flammable or combustible liquids or other flammable materials are stored and which are within 100 feet of where miners normally work shall be well-ventilated and constructed of materials having a fire-resistance rating of no less than one (1) hour as tested under the appropriate National Fire Protection Association (NFPA) fire-resistance test or under a test of another approved testing agency.

14. Advisory standard number 55.4–6 is reserved as follows:

55.4–6 [Reserved]

15. Advisory standard 55.4–31 is revised, renumbered, and made mandatory as follows:

55.4–39B *Mandatory.* Emergency fire fighting plans in combination with evacuation and rescue plans shall be established and coordinated with available fire fighting organizations. Emergency fire fighting drills shall be held for each shift at least once every six (6) months.

16. Standard numbers 55.4–30 of action B(11) and 55.4–31 of action B(15) above are reserved, and reserved standard number 55.4–32 is revised as follows:

55.4–30 through 55.4–32 [Reserved]

17. Advisory standard 55.4–41 is revised and made mandatory as follows:

55.4–41 *Mandatory.* Every building or structure where persons normally work shall be provided with exits sufficient to permit the prompt escape of persons in case of fire.

18. Advisory standard 55.4–34 is revised, renumbered, and made mandatory as follows:

55.4–47 *Mandatory.* Belt conveyors shall be equipped with a safety switch capable of automatically stopping the drive pulley in the event of excessive slippage of the belt, where ignition of the belt could create a hazard to personnel. When it is necessary to operate the conveyor while temporarily by-passing the safety switch or any automatic function of the switch, a person shall attend the belt at the drive pulley.

19. Standard numbers 55.4–34 and 55.4–49 are reserved as follows:

55.4–34 [Reserved]

* * * * *

55.4–49 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.5 [Amended]

C. Section 55.5 "Air quality and physical agents" is amended as follows:

1. Advisory standard 55.5–4 is revised, transferred to Section 55.9 "Loading, hauling, dumping," renumbered 55.9–74, and standard number 55.5–4 is reserved as follows:

55.5–4 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.6 [Amended]

D. Section 55.6 "Explosives" is amended as follows:

1. Advisory standards 55.6–3 and 55.6–4 are revoked, and standard numbers 55.6–3 and 55.6–4 are reserved as follows:

55.6–3 and 55.6–4 [Reserved]

2. Advisory standard 55.6–130 is revised and made mandatory as follows:

55.6–130 *Mandatory.* At least a 15-foot air gap shall be provided between the blasting circuit and the electric power source.

3. Advisory standards 55.6–190, 55.6–192 and 55.6–196 are revoked, standard numbers 55.6–190, 55.6–192 and 55.6–196 are reserved, and reserved standard numbers 55.6–191 and 55.6–197 are revised as follows:

55.6–190 through 55.6–192 [Reserved]

* * * * *

55.6–196 and 55.6–197 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.7 [Amended]

E. Section 55.7 "Drilling" is amended as follows:

1. Advisory standard 55.7–1 is revoked, and standard number 55.7–1 is reserved as follows:

55.7–1 [Reserved]

2. Advisory standard 55.7–9 is revised and made mandatory as follows:

55.7–9 *Mandatory.* If a drill helper assists the drill operator during movement of a drill to a new location, the helper shall be in sight

of, or in communication with, the operator at all times.

3. Advisory standards 55.7–14, 55.7–16, and 55.7–17 are revoked.

4. Reserved standard numbers 55.7–20 through 55.7–24 are revised and standard numbers 55.7–25 through 55.7–49 are added and reserved as follows:

55.7–20 through 55.7–49 [Reserved]

5. Advisory standard 55.7–6 is revised, renumbered, and made mandatory as follows:

55.7–50 *Mandatory.* Receptacles or racks shall be provided for drill steel and tools stored or carried on drills.

6. Advisory standard 55.7–7 is revised, renumbered, and made mandatory as follows:

55.7–51 *Mandatory.* To prevent injury to personnel, tools and other objects shall not be left loose on the mast or drill platform.

7. Standard numbers 55.7–6 and 55.7–7 are reserved as follows:

55.7–6 and 55.7–7 [Reserved]

8. Advisory standard 55.7–15 is revised, renumbered, and made mandatory as follows:

55.7–52 *Mandatory.* Persons shall not drill from—

(a) Positions which hinder their access to the control levers;

(b) Insecure footing or insecure staging; or

(c) Atop equipment not suitable for drilling.

9. Standard numbers 55.7–14, 55.7–15, 55.7–16, and 55.7–17 are reserved as follows:

55.7–14 through 55.7–17 [Reserved]

10. Advisory standard 55.7–19 is revised, renumbered, and made mandatory as follows:

55.7–53 *Mandatory.* Before hand-held drills are moved from one working area to another, air shall be turned off and bled from the hose.

11. Standard number 55.7–19 is reserved as follows:

55.7–19 [Reserved]

12. A series of numbers 55.7–54 through 55.7–100 is added and reserved as follows:

55.7–54 through 55.7–100 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.8 [Amended]

F. Section 55.8 "Rotary jet piercing" is amended as follows:

1. Advisory standard 55.8–1 is revised and made mandatory as follows:

55.8–1 *Mandatory.* Jet piercing drills shall be provided with—

(a) A system to pressurize the equipment operator's cab, when a cab is provided; and

(b) A protective cover over the oxygen flow indicator.

2. Advisory standard 55.8–4 is revised and made mandatory as follows:

55.8–4 *Mandatory.* When rotary jet piercing equipment requires refueling at locations other than fueling stations, a system for fueling without spillage shall be provided.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.9 [Amended]

G. Section 55.9 "Loading, hauling, dumping" is amended as follows:

1. Advisory standard 55.9–8 is revoked, and standard number 55.9–8 is reserved as follows:

55.9–8 [Reserved]

2. Advisory standard 55.9–10 is revised and made mandatory as follows:

55.9–10 *Mandatory.* Equipment operators' cabs shall not be equipped, altered or otherwise modified in a manner which impairs operating visibility.

3. Advisory standard 55.9–16 is revised and made mandatory as follows:

55.9–16 *Mandatory.* Roadbeds, rails, joints, switches, frogs, and other trackage elements on railroads subject to the control of the operator shall be designed, installed and maintained in a safe manner consistent with the speed and type of haulage.

4. Advisory standards 55.9–18 and 55.9–29 are revoked, and standard numbers 55.9–18 and 55.9–29 are reserved as follows:

55.9–18 [Reserved]

* * * * *

55.9–29 [Reserved]

5. Advisory standard 55.9–63 is revised and made mandatory as follows:

55.9–63 *Mandatory.* Ramps and dumping facilities shall—

(a) Be of substantial construction; and

(b) Have suitable width, clearance, and headroom to accommodate the equipment using the facilities.

6. Advisory standard 55.9–70 is revised and made mandatory as follows:

55.9–70 *Mandatory.* A tow bar of substantial construction or other suitable means of control shall be used to tow heavy equipment. A substantial safety chain or wire rope shall be used in conjuction with any primary rigging.

7. New mandatory standard 55.9–74 (formerly advisory standard 55.5–4) is added as follows:

55.9–74 *Mandatory.* Dust shall be suitably controlled at muck piles, material transfer points, crushers, and on haulage roads where hazards to personnel may be created as a result of impaired visibility.

8. Advisory standards 55.9–81 and 55.9–82 are revoked, standard numbers 55.9–81 and 55.9–82 are reserved, and reserved standard numbers 55.9–75 through 55.9–80 are revised as follows:

55.9–75 through 55.9–82 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§55.10 [Amended]

H. Section 55.10 "Aerial tramways" is amended as follows:

1. Advisory standard 55.10–1 is revised and made mandatory as follows:

55.10–1 *Mandatory.* Buckets shall not be overloaded, and feed shall be regulated to prevent spillage.

2. Advisory standard 55.10–2 is revised and made mandatory as follows:

55.10–2 *Mandatory.* Inspection and maintenance of carriers (including loading and unloading mechanisms), ropes and supports, and brakes shall be performed by competent persons according to the recommendations of the manufacturer.

3. Advisory standard 55.10–4 is revised and made mandatory as follows:

55.10–4 *Mandatory.* Positive-action-type brakes and devices which apply the brakes automatically in the event of a power failure shall be provided on aerial tramways.

4. Advisory standard 55.10–5 is revised and made mandatory as follows:

55.10–5 *Mandatory.* Track cable connections shall not obstruct the passage of carriage wheels.

5. Advisory standard 55.10–6 is revised and made mandatory as follows:

55.10–6 *Mandatory.* Towers shall be suitably protected from swaying buckets.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.11 [Amended]

I. Section 55.11 "Travelways and escapeways" is amended as follows:

1. Advisory standard 55.11–4 is revised and made mandatory as follows:

55.11–4 *Mandatory.* Portable rigid ladders shall be provided with suitable bases and placed securely when used.

2. Advisory standard 55.11–7 is revised and made mandatory as follows:

55.11–7 *Mandatory.* Wooden components of ladders shall not be painted except with a transparent finish.

3. Advisory standard 55.11–8 is revoked, and standard number 55.11–8 is reserved as follows:

55.11–8 [Reserved]

4. Advisory standard 55.11–10 is revised and made mandatory as follows:

55.11–10 *Mandatory.* Vertical clearance above stair steps shall be a minimum of

seven (7) feet, or suitable warning signs or similar devices shall be provided to indicate an impaired clearance.

5. Advisory standard 55.11–11 is revised and made mandatory as follows:

55.11–11 *Mandatory.* Persons using ladders shall face the ladders and have both hands free for climbing and descending.

6. Advisory standard 55.11–15 is revoked, and standard number 55.11–15 is reserved as follows:

55.11–15 [Reserved]

7. Advisory standard 55.11–17 is revised and made mandatory as follows:

55.11–17 *Mandatory.* Fixed ladders shall not incline backwards.

8. Advisory standard 55.11–25 is revised and made mandatory as follows:

55.11–25 *Mandatory.* Fixed ladders, except on mobile equipment, shall be offset and have substantial railed landings at least every 30 feet unless backguards or equivalent protection, such as safety belts and safety lines, are provided.

9. Advisory standard 55.11–26 is revised and made mandatory as follows:

55.11–26 *Mandatory.* Fixed ladders 70 degrees to 90 degrees from the horizontal and 30 feet or more in length shall have backguards, cages or equivalent protection, starting at a point not more than seven (7) feet from the bottom of the ladders.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.12 [Amended]

J. Section 55.12 "Electricity" is amended as follows:

1. Advisory standard 55.12–4 is revised and made mandatory as follows:

55.12–4 *Mandatory.* Electrical conductors shall be of a sufficient size and current-carrying capacity to ensure that a rise in temperature resulting from normal operations will not damage the insulating materials. Electrical conductors exposed to mechanical damage shall be protected.

2. Advisory standard 55.12–19 is revised and made mandatory as follows:

55.12–19 *Mandatory.* Where access is necessary, suitable clearance shall be provided at stationary electrical equipment or switchgear.

3. Advisory standard 55.12–22 is revised and made mandatory as follows:

55.12–22 *Mandatory.* Areas containing major electrical installations shall be entered only by authorized persons.

4. Advisory standards 55.12–24, 55.12–29, and 55.12–31 are revoked, and standard numbers 55.12–24, 55.12–29, and 55.12–31 are reserved as follows:

55.12–24 [Reserved]

* * * * *

55.12–29 [Reserved]

* * * * *

55.12–31 [Reserved]

5. Advisory standard 55.12–35 is revised and made mandatory as follows:

55.12–35 *Mandatory.* Lamp sockets shall be of a weatherproof type where they are exposed to weather or wet conditions that may interfere with illumination or create a shock hazard.

6. Advisory standard 55.12–38 is revised and made mandatory as follows:

55.12–38 *Mandatory.* Trailing cables shall be attached to machines in a suitable manner to protect the cable from damage and to prevent strain on the electrical connections.

7. Advisory standard 55.12–39 is revised and made mandatory as follows:

55.12–39 *Mandatory.* Surplus trailing cables to shovels, cranes and similar equipment shall be—

(a) Stored in cable boats;

(b) Stored on reels mounted on the equipment; or

(c) Otherwise protected from mechanical damage.

8. Advisory standards 55.12–44 and 55.12–49 are revoked, standard numbers 55.12–44 and 55.12–49 are reserved, and reserved standard number 55.12–43 is revised as follows:

55.12–43 and 55.12–44 [Reserved]

* * * * *

55.12–49 [Reserved]

9. Advisory standard 55.12–50 is revised and made mandatory as follows:

55.12–50 *Mandatory.* Trolley wires shall be installed at least seven (7) feet above rails where height permits, and aligned and supported to suitably control sway and sag.

10. Advisory standards 55.12–51 and 55.12–52 are revoked, and standard numbers 55.12–51 and 55.12–52 are reserved as follows:

55.12–51 and 55.12–52 [Reserved]

11. Advisory standard 55.12–53 is revised and made mandatory as follows:

55.12–53 *Mandatory.* Ground wires for lighting circuits powered from trolley wires shall be connected securely to the ground-return circuit.

12. Advisory standard 55.12–54 is revoked, standard number 55.12–54 is reserved and reserved standard numbers 55.12–55 through 55.12–64 are revised as follows:

55.12–54 through 55.12–64 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.13 [Amended]

K. Section 55.13 "Compressed air and boilers" is amended as follows:

1. Advisory standard 55.13–10 is revised and made mandatory as follows:

55.13–10 *Mandatory.* (a) Reciprocating-type air compressors rated over 10 horsepower shall be equipped with automatic temperature-actuated shutoff mechanisms which shall be set or adjusted to the compressor when the normal operating temperature is exceeded by more than 25 percent.

(b) However, this standard does not apply to reciprocating-type air compressors rated over 10 horsepower if equipped with fusible plugs that were installed in the compressor discharge lines before November 15, 1979, and designed to melt at temperatures at least 50 degrees below the flash point of the compressors' lubricating oil.

2. Advisory standard 55.13–11 is revised and made mandatory as follows:

55.13–11 *Mandatory.* Air receiver tanks shall be equipped with one or more automatic pressure-relief valves. The total relieving capacity of the relief valves shall prevent pressure from exceeding the maximum allowable working pressure in a receiver tank by not more than 10 percent. Air receiver tanks also shall be equipped with indicating pressure gages which accurately measure the pressure within the air receiver tanks.

3. Advisory standard 55.13–12 is revised and made mandatory as follows:

55.13–12 *Mandatory.* Compressor air intakes shall be installed to insure that only clean, uncontaminated air enters the compressors.

4. Advisory standards 55.13–13 and 55.13–14 are revoked, and standard numbers 55.13–13 and 55.13–14 are reserved as follows:

55.13–13 and 55.13–14 [Reserved]

5. Advisory standard 55.13–15 is revised and made mandatory as follows:

55.13–15 *Mandatory.* (a) Compressed-air receivers and other unfired pressure vessels shall be inspected by inspectors holding a valid National Board Commission and in accordance with the applicable chapters of the National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979. This code is incorporated by reference and made a part of this standard, may be examined at any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration, and may be obtained from the publisher, the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

(b) Records of inspections shall be kept in accordance with requirements of the National Board Inspection Code, and the records shall be made available to the Secretary or his authorized representative.

6. Advisory standard 55.13–16 is revoked, and standard number 55.13–16 is reserved as follows:

55.13–16 [Reserved]

7. Advisory standard 55.13–17 is revised and made mandatory as follows:

55.13–17 *Mandatory.* Compressor discharge pipes where carbon build-up may occur shall be cleaned periodically as recommended by the manufacturer, but no less frequently than once every two (2) years.

8. Advisory standard 55.13–18 is revoked, and standard number 55.13–18 is reserved as follows:

55.13–18 [Reserved]

9. Advisory standard 55.13–30 is revised and made mandatory as follows:

55.13–30 *Mandatory.* (a) Fired pressure vessels (boilers) shall be equipped with water level gages, pressure gages, automatic pressure-relief valves, blowdown piping, and other safety devices approved by the American Society of Mechanical Engineers to protect against hazards from overpressure, flameouts, fuel interruptions and low water level, all as required by the appropriate sections, chapters and appendices listed in paragraph (b) (1) and (2) below.

(b) These gages, devices and piping shall be designed, installed, operated, maintained, repaired, altered, inspected, and tested by inspectors holding a valid National Board Commission and in accordance with the following listed sections, chapters and appendices:

(1) The ASME Boiler and Pressure Vessel Code, 1977, published by the American Society of Mechanical Engineers.

Section and Title

I Power Boilers.
II Material Specifications—Part A—Ferrous.
II Material Specifications—Part B—Nonferrous.
II Material Specifications—Part C—Welding Rods, Electrodes, and Filler Metals.
IV Heating Boilers.
V Nondestructive Examination.
VI Recommended Rules for Care and Operation of Heating Boilers.
VII Recommended Rules for Care of Power Boilers.

(2) The National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979, published by the National Board of Boiler and Pressure Vessel Inspectors.

Chapter and Title

I Glossary of Terms.
II Inspection of Boilers and Pressure Vessels.
III Repairs and Alterations to Boiler and Pressure Vessels by Welding.
IV Shop Inspection of Boilers and Pressure Vessels.
V Inservice Inspection of Pressure Vessels by Authorized Owner-User Inspection Agencies.

Appendix and Title

A Safety and Safety Relief Valves.
B Non-ASME Code Boilers and Pressure Vessels.
C Storage of Mild Steel Covered Arc Welding Electrodes.
D–R National Board "R" (Repair) Symbol Stamp.
D–VR National Board "VR" (Repair of Safety and Safety Relief Valve) Symbol Stamp.
D–VR1 Certificate of Authorization for Repair Symbol Stamp for Safety and Safety Relief Valves.
D–VR2 Outline of Basic Elements of Written Quality Control System for Repairers of ASME Safety and Safety Relief Valves.
D–VR3 Nameplate Stamping for "VR".
E Owner-user Inspection Agencies.
F Inspection Forms.

(c) Records of inspections and repairs shall be kept in accordance with the requirements of the ASME Boiler and Pressure Vessel Code and the National Board Inspection Code. The records shall be made available to the Secretary or his authorized representative.

(d) Sections of the ASME Boiler and Pressure Vessel Code, 1977, listed in paragraph (b)(1) above, and chapters and appendices of the National Board Inspection Code, 1979, listed in paragraph (b)(2) above, are incorporated by reference and made a part of this standard. These publications may be obtained from the publishers, the American Society of Mechanical Engineers, 345 East Forty-seventh Street, New York, N.Y. 10017, and the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

The publications may be examined at any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration.

10. Advisory standards 55.13–31, 55.13–32, 55.13–33, and 55.13–34 are revoked, and standard numbers 55.13–31, 55.13–32, 55.13–33, and 55.13–34 are reserved as follows:

55.13–31 through 55.13–34 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.14 [Amended]

L. Section 55.14 "Use of equipment" is amended as follows:

1. Advisory standard 55.14–3 is revised and made mandatory as follows:

55.14–3 *Mandatory.* Guards at conveyor-drive, conveyor-head, and conveyor-tail pulleys shall extend a distance sufficient to prevent a person from accidentally reaching behing the guard and becoming caught between the belt and the pulley.

2. Advisory standards 55.14–4 and 55.14–5 are revoked, and standard numbers 55.14–4 and 55.14–5 are reserved as follows:

55.14–4 and 55.14–5 [Reserved]

3. Advisory standard 55.14–7 is revised and made mandatory as follows:

55.14–7 *Mandatory.* Guards shall be of substantial construction and properly maintained.

4. Advisory standard 55.14–11 is revised and made mandatory as follows:

55.14–11 *Mandatory.* Guards, shields, or other suitable protection shall be provided in areas where flying or falling materials present a hazard to personnel.

5. Advisory standard 55.14–25 is revoked, and standard number 55.14–25 is reserved as follows:

55.14–25 [Reserved].

6. Advisory standard 55.14–27 is revised and made mandatory as follows:

55.14–27 *Mandatory.* Operation of machinery or equipment shall be assigned only to competent persons.

7. Advisory standard 55.14–28 is revoked, and standard number 55.14–28 is reserved as follows:

55.14–28 [Reserved]

8. Advisory standard 55.14–36 is revised and made mandatory as follows:

55.14–36 *Mandatory.* Tools and equipment shall not be used beyond the design capacity intended by the manufacturer, where such use may create a hazard to personnel.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.15 [Amended]

M. Section 55.15 "Personal protection" is amended as follows:

1. Advisory standards 55.15–8, 55.15–9, 55.15–10, 55.15–11, and 55.15–13 are revoked, standard numbers 55.15–8, 55.15–9, 55.15–10, 55.15–11, 55.15–12 (Revoked July 1, 1974, 39 FR 24317), and 55.15–13 are reserved, and reserved standard numbers 55.15–14 through 55.15–19 are revised as follows:

55.15–8 through 55.15–19 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.16 [Amended]

N. Section 55.16 "Materials storage and handling" is amended as follows:

1. Advisory standard 55.16–1 is revised and made mandatory as follows:

55.16–1 *Mandatory.* Supplies shall not be stacked or stored in a manner which creates tripping or fall-of-material hazards.

2. Advisory standard 55.16–2 is revised and made mandatory as follows:

55.16–2 *Mandatory.* (a) Bins, hoppers, silos, tanks, and surge piles, where loose unconsolidated materials are stored, handled or transferred shall be—

(1) Equipped with mechanical devices or other effective means of handling materials so that during normal operations persons are not required to enter or work where they are exposed to entrapment by the caving or sliding of materials; and

(2) Equipped with supply and discharge operating controls. The controls shall be located so that spills or overruns will not endanger persons.

(b) Where persons are required to move around or over any facility listed in this standard, suitable walkways or passageways shall be provided.

(c) Where persons are required to enter any facility listed in this standard for maintenance or inspection purposes, ladders, platforms, or staging shall be provided. No person shall enter the facility until the supply and discharge of materials have ceased and the supply and discharge equipment is locked out. Persons entering the facility shall wear a safety belt or harness equipped with a lifeline suitably fastened. A second person, similarly equipped, shall be stationed near where the lifeline is fastened and shall constantly adjust it or keep it tight as needed, with minimum slack.

3. Advisory standard 55.16–7 is revised and made mandatory as follows:

55.16–7 *Mandatory.* (a) Taglines shall be attached to loads that may require steadying or guidance while suspended.

(b) Hitches and slings used to hoist materials shall be suitable for the particular material handled.

4. Advisory standard 55.16–8 is revoked, and standard number 55.16–8 is reserved as follows:

55.16–8 [Reserved]

5. Advisory standard 55.16–10 is revised and made mandatory as follows:

55.16–10 *Mandatory.* To protect personnel, material shall not be dropped from an overhead elevation until the drop area is first cleared of personnel and the area is then either guarded or a suitable warning is given.

6. Advisory standard 55.16–12 is revised and made mandatory as follows:

55.16–12 *Mandatory.* Chemical substances, including concentrated acids and alkalies, shall be stored to prevent inadvertent contact with each other or with other substances, where such contact could cause a violent reaction or the liberation of harmful fumes or gases.

7. Advisory standard 55.16–13 is revised and made mandatory as follows:

55.16–13 *Mandatory.* Suitable warning shall be given before molten metal is poured and before a container of molten metal is moved.

8. Advisory standard 55.16–16 is revised and made mandatory as follows:

55.16–16 *Mandatory.* Fork and other similar types of lift trucks shall be operated with the—

(a) Upright tilted back to steady and secure the load;

(b) Load in the upgrade position when ascending or descending grades in excess of 10 percent;

(c) Load not raised or lowered enroute except for minor adjustments; and

(d) Load-engaging device downgrade when traveling unloaded on all grades.

[301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).]

§ 55.18 [Amended]

O. Section 55.18 "Safety programs" is amended as follows:

1. Advisory standard 55.18–1 is revoked, and standard number 55.18–1 is reserved as follows:

55.18–1 [Reserved]

2. Advisory standard 55.18–2 is revised and made mandatory as follows:

55.18–2 *Mandatory.* (a) A competent person designated by the operator shall examine each working place at least once each shift for conditions which may adversely affect safety or health. The operator shall promptly initiate appropriate action to correct such conditions.

(b) A record that such examinations were conducted shall be kept by the operator for a period of one (1) year, and shall be made available for review by the Secretary or his authorized representative.

(c) In addition, conditions that may present an imminent danger which are noted by the person conducting the examination shall be brought to the immediate attention of the operator who shall withdraw all persons from the area affectd (except persons referred to in section 104(c) of the Federal Mine Safety and Health Act of 1977) until the danger is abated.

3. Advisory standards 55.18–3, 55.18–4, 55.18–5, 55.18–7, and 55.18–8 are revoked, and standard numbers 55.18–3, 55.18–4, 55.18–5, 55.18–7 and 55.18–8 are reserved as follows:

55.18–3 through 55.18–5 [Reserved]

* * * * *

55.18–7 and 55.18–8 [Reserved]

4. Advisory standard 55.18–9 is revised and made mandatory as follows:

55.18–9 *Mandatory.* When persons are working at the mine, a competent person designated by the mine operator shall be in attendance to take charge in case of an emergency.

5. Advisory standard 55.18–11 is revoked, and standard number 55.18–11 is reserved as follows:

55.18–11 [Reserved]

6. Advisory standard 55.18–13 is revised and made mandatory as follows:

55.18–13 *Mandatory.* A suitable communication system shall be provided at the mine to obtain assistance in the event of an emergency.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b) (2)).)

§ 55.19 [Amended]

P. Section 55.19 "Man hoisting" is amended as follows:

1. The paragraph immediately following the heading "§ 55.19 Man hoisting" is revised as follows:

The hoisting standards in this section apply to those hoists and appurtenances used for hoisting persons. However, where persons may be endangered by hoists and appurtenances used solely for handling ore, rock, and materials, the appropriate standards should be applied.

Emergency hoisting facilities should conform to the extent possible to safety requirements for other hoists, and should be adequate to remove the persons from the mine with a minimum of delay.

2. Advisory standard 55.19–12 is revised and made mandatory as follows:

55.19–12 *Mandatory.* Where grooved drums are used, the grooves shall be of suitable size and pitch for the ropes used.

3. Advisory standards 55.19–20 and 55.19–25 are revoked, and standard numbers 55.19–20 and 55.19–25 are reserved as follows:

55.19–20 [Reserved]

* * * * *

55.19–25 [Reserved]

4. Advisory standard 55.19–35 is revised and made mandatory as follows:

55.19–35 *Mandatory.* All headframes shall be constructed with suitable design considerations to allow for all dead loads, live loads, and wind loads.

5. Advisory standard 55.19–36 is revised and made mandatory as follows:

55.19–36 *Mandatory.* Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyance.

6. Advisory standard 55.19–37 is revised and made mandatory as follows:

55.19–37 *Mandatory.* Fleet angles on hoists installed after November 15, 1979 shall not be greater than one and one-half degrees for smooth drums or two degrees for grooved drums.

7. Advisory standard 55.19–39 is revised and made mandatory as follows:

55.19–39 *Mandatory.* All personnel hoists, except emergency escape hoists and hoists with rope speeds of 200 feet per minute or less, installed after November 15, 1979, shall have drum and sheave tread diameters—

(1) Not less than 60 times the hoist rope diameter for slope or inclined shaft applications;

(2) Not less than 80 times the hoist rope diameter if the hoist ropes are one inch in diameter or greater, or not less than 60 times the hoist rope diameter if the hoist ropes are less than one inch in diameter for vertical shaft applications; or

(3) Not less than 100 times the hoist rope diameter for locked coil ropes.

8. Advisory standard 55.19–67 is revised and made mandatory as follows:

55.19–67 *Mandatory.* During shift changes, an authorized person shall be in charge of each trip in which persons are hoisted.

9. Advisory standard 55.19–72 is revised and made mandatory as follows:

55.19–72 *Mandatory.* When combinations of cages and skips are used in the same compartment, the cages shall be enclosed to protect personnel from flying material and the hoist speed reduced to man-speed as defined in standard 55.19–61, but not to exceed 1,000 feet per minute. Muck shall not be hoisted with personnel during shift changes.

10. Advisory standard 55.19–74 is revised and made mandatory as follows:

55.19–74 *Mandatory.* Persons shall not ride the bail, rim, bonnet, or crosshead of any shaft conveyance except when necessary for inspection and maintenance, and then only when suitable protection for persons is provided.

11. Advisory standard 55.19–81 is revised and made mandatory as follows:

55.19–81 *Mandatory.* When conveyances controlled by a hoist operator are not in use, they shall be released and the conveyances shall be raised or lowered a suitable distance to prevent persons from boarding or loading the conveyances.

12. Advisory standard 55.19–91 is revised and made mandatory as follows:

55.19–91 *Mandatory.* Hoist operators shall accept hoisting instructions only by the regular signaling system unless it is out of order. In such an event, and during other emergencies, the hoist operator shall accept instructions to direct movement of the conveyances only from authorized persons.

13. Advisory standard 55.19–93 is revised and made mandatory as follows:

55.19–93 *Mandatory.* A standard code of hoisting signals shall be adopted and used at each mine. The movement of a shaft conveyance on a "one bell" signal is prohibited.

14. Advisory standard 55.19–104 is revised and made mandatory as follows:

55.19–104 *Mandatory.* Suitable clearance at shaft stations shall be provided to allow safe movement of persons, equipment and materials.

15. Advisory standard 55.19–124 is revised and made mandatory as follows:

55.19–124 *Mandatory.* Hoist ropes other than those on friction hoists shall be cut off at least six (6) feet above the highest connection to the conveyance at time intervals not to exceed one (1) year unless a shorter time is required by standard 55.19–126, or by conditions of use. The portion of the rope that is cut off shall be examined and inspected by a competent person for damage, corrosion, wear and fatigue.

16. Advisory standard 55.19–125 is revised and made mandatory as follows:

55.19–125 *Mandatory.* Hoist ropes wound in multiple layers shall have a length cut off at the drum end at least three (3) times during the anticipated life of the rope and whenever necessary as required by standard 55.19–126 to distribute the wear at change-of-layer and crossover points. The length of rope cut off shall not be a whole number multiple of the circumference of the drum.

17. Advisory standard 55.19–126 is revised and made mandatory as follows:

55.19–126 *Mandatory.* Hoist ropes shall be examined over the entire active length at least every month to evaluate wear and possible damage. When such examinations or other inspections reveal that the rope is worn, and at least every six (6) months, caliper measurements or nondestructive tests shall be made at the following locations:

(a) Wherever wear is evident;

(b) Immediately above the socket or clips and above the safety connection;

(c) Where the rope rests on the sheaves;

(d) Where the ropes leave the drums when the conveyances are at the regular stopping point;

(e) Where a layer of rope begins to overlap another layer on the drum; and

(f) At 100 foot intervals (measurements shall be made midway between the last previously calipered points).

18. Advisory standard 55.19–127 is revoked, and standard number 55.19–127 is reserved as follows:

55.19–127 [Reserved]

19. Advisory standard 55.19–130 is revised and made mandatory as follows:

55.19–130 *Mandatory.* Before hoisting persons and to assure that the hoisting compartments are clear of obstructions, empty hoist conveyances shall be operated at least one round trip after—

(a) Any hoist or shaft repairs or related equipment repairs that might restrict or obstruct conveyance clearance;

(b) Any oversize or overweight material or equipment trips that might restrict or obstruct conveyance clearance;

(c) Blasting in or near the shaft that might restrict or obstruct conveyance clearance; or

(d) Remaining idle for one shift or longer.

20. Advisory standard 55.19–131 is revised and made mandatory as follows:

55.19–131 *Mandatory.* Hoist conveyance connections shall be inspected at least once during any 24-hour period that the conveyance is used for hoisting persons.

21. Advisory standard 55.19–132 is revised and made mandatory as follows:

55.19–132 *Mandatory.* (a) A performance drop test of hoist conveyance safety catches shall be made at the time of installation, or prior to installation, in a mockup of the actual installation. The test shall be certified to in writing by the manufacturer or by a registered professional engineer performing the test.

(b) After installation and before use, and at the beginning of any seven (7) day period during which the conveyance is to be used, the conveyance shall be suitably rested and the hoist rope slackened to test for the unrestricted functioning of the safety catches and their activating mechanisms.

(c) The safety catches shall be inspected by a competent person at the beginning of any 24-hour period that the conveyance is to be used.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 55.20 [Amended]

Q. Section 55.20 "Miscellaneous" is amended as follows:

1. Advisory standards 55.20–4, 55.20–6, and 55.20–7 are revoked, and standard numbers 55.20–4, 55.20–6, and 55.20–7 are reserved as follows:

55.20–4 [Reserved]

* * * * *

55.20–6 and 55.20–7 [Reserved]

(301(b)(2), and Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

PART 56—HEALTH AND SAFETY STANDARDS—SAND, GRAVEL, AND CRUSHED STONE OPERATIONS

Part 56, Subchapter N, Chapter I, Title 30, Code of Federal Regulations is amended and revised as follows:

§ 56.3 [Amended]

R. Section 56.3 "Ground control" is amended as follows:

1. Advisory standards 56.3–7, 56.3–10, and 56.3–13 are revoked, standard numbers 56.3–7, 56.3–10, and 56.3–13 are reserved, and reserved standard numbers 56.3–11 and 56.3–14 through 56.3–49 are revised as follows:

56.3–7 [Reserved]

* * * * *

56.3–10 and 56.3–11 [Reserved]

* * * * *

56.3–13 through 56.3–49 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.4 [Amended]

S. Section 56.4 "Fire prevention and control" is amended as follows:

1. Advisory standard 56.4–3 is revised and made mandatory as follows:

56.4–3 *Mandatory.* Areas surrounding electric substations and unburied tanks used for the storage of flammable or combustible liquids shall be free of combustible materials (including dry vegetation) for a distance of at least 25 feet.

2. Advisory standard 56.4–5 is revised and made mandatory as follows:

56.4–5 *Mandatory.* Effective February 13, 1980, fixed unburied tanks used for the storage of flammable or combustible liquids shall be securely mounted on firm foundations. Where necessary to prevent leaks caused by tanks settling, piping shall be provided with flexible connections or other special fittings.

3. Advisory standard 56.4–7 is revised and made mandatory as follows:

56.4–7 *Mandatory.* Means shall be provided to remove or control spilled flammable or combustible liquids.

4. Advisory standard 56.4–49 is revised, renumbered, and made mandatory as follows:

56.4–12 *Mandatory.* All flammable and combustible waste materials, grease, lubricants or flammable liquids shall not be allowed to accumulate where they can create a fire hazard.

5. Advisory standard 56.4–13 is revised and made mandatory as follows:

56.4–13 *Mandatory.* In areas where materials such as oily waste or oily rags create a fire hazard, the materials shall be placed in covered metal containers until disposed of properly.

6. Advisory standard 56.4–16 is revised and made mandatory as follows:

56.4–16 *Mandatory.* Drip pans shall be provided to catch leakage or spillage whenever combustible or flammable liquids are dispensed in a place or manner which may create a fire hazard. Floor areas where drip pans are used shall be cleaned immediately after spills.

7. Advisory standard 56.4–17 is revoked and standard number 56.4–17 is reserved as follows:

56.4–17 [Reserved]

8. Advisory standard 56.4–25 is revised and made mandatory as follows:

56.4–25 *Mandatory.* Effective February 13, 1980, whenever fire hydrants are used, they shall be provided with—

(a) Uniform fittings;

(b) Readily available wrenches or keys to open the valves; and

(c) Readily available adapters that connect hydrant fittings to the hose equipment of local fire departments.

9. Advisory standard 56.4–26 is revised and made mandatory as follows:

56.4–26 *Mandatory.* Water pipes, valves, outlets, hydrants, and hoses designated for fire fighting purposes shall be inspected every 90 days and tested annually.

10. Advisory standard 56.4–39 is revised, renumbered, and made mandatory as follows:

56.4–27 *Mandatory.* Whenever self-propelled mobile equipment is used, such equipment shall be provided with a suitable fire extinguisher readily accessible to the equipment operator.

11. Advisory standard 56.4–30 is revoked.

12. Standard number 56.4–39 of action B(10) above is replaced with a series of numbers 56.4–39A through 56.4–39Z, and numbers 56.4–39C through 56.4–39Z are reserved as follows:

56.4–39C through 56.4–39Z [Reserved]

13. Advisory standard 56.4–6 is revised, renumbered, and made mandatory as follows:

56.4–39A *Mandatory.* Effective February 13, 1980,storage buildings or rooms in which flammable or combustible liquids or other flammable materials are stored and which are within 100 feet of where miners normally work shall be well-ventilated and constructed of materials having a fire-resistance rating of no less than one (1) hour as tested under the appropriate National Fire Protection Association (NFPA) fire-resistance test or under a test of another approved testing agency.

14. Advisory standard number 56.4–6 is reserved as follows:

56.4–6 [Reserved]

15. Advisory standard 56.4–31 is revised, renumbered, and made mandatory as follows:

56.4–39B *Mandatory.* Emergency fire fighting plans in combination with evacuation and rescue plans shall be established and coordinated with available fire fighting organizations. Emergency fire fighting drills shall be held for each shift at least once every six (6) months.

16. Standard numbers 56.4–30 of action B(11) and 56.4–31 of action B(15) above are reserved, and reserved standard number 56.4–32 is revised as follows:

56.4–30 through 56.4–32 [Reserved]

17. Advisory standard 56.4–41 is revised and made mandatory as follows:

56.4–41 *Mandatory.* Every building or structure where persons normally work shall be provided with exits sufficient to permit the prompt escape of persons in case of fire.

18. Advisory standard 56.4–34 is revised, renumbered, and made mandatory as follows:

56.4–47 *Mandatory.* Belt conveyors shall be equipped with a safety switch capable of automatically stopping the drive pulley in the event of excessive slippage of the belt, where ignition of the belt could create a hazard to personnel. When it is necessary to operate the conveyor while temporarily by-passing the safety switch or any automatic function of the switch, a person shall attend the belt at the drive pulley.

19. Standard numbers 56.4–34 and 56.4–49 are reserved as follows:

56.4–34 [Reserved]

* * * * *

56.4–49 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 56.5 [Amended]

T. Section 56.5 "Air quality and physical agents" is amended as follows:

1. Advisory standard 56.5–4 is revised, transferred to Section 56.9 "Loading, hauling, dumping," renumbered 56.9–74, and standard number 56.5–4 is reserved as follows:

56.5–4 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 56.6 [Amended]

U. Section 56.6 "Explosives" is amended as follows:

1. Advisory standards 56.6–3 and 56.6–4 are revoked, and standard numbers 56.6–3 and 56.6–4 are reserved as follows:

56.6–3 and 56.6–4 [Reserved]

2. Advisory standard 56.6–130 is revised and made mandatory as follows:

56.6–130 *Mandatory.* At least a 15-foot air gap shall be provided between the blasting circuit and the electric power source.

3. Advisory standards 56.6–190, 56.6–192 and 56.6–196 are revoked, standard numbers 56.6–190, 56.6–192 and 56.6–196 are reserved, and reserved standard numbers 56.6–191 and 56.6–197 are revised as follows:

56.6–190 through 56.6–192 [Reserved]

* * * * *

56.6–196 and 56.6–197 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 56.7 [Amended]

V. Section 56.7 "Drilling" is amended as follows:

1. Advisory standard 56.7–1 is revoked, and standard number 56.7–1 is reserved as follows:

56.7–1 [Reserved]

2. Advisory standard 56.7–9 is revised and made mandatory as follows:

56.7–9 *Mandatory.* If a drill helper assists the drill operator during movement of a drill to a new location, the helper shall be in sight of, or in communication with, the operator at all times.

3. Advisory standards 56.7–14, 56.7–16, and 56.7–17 are revoked.

4. Reserved standard numbers 56.7–20 through 56.7–24 are revised and standard numbers 56.7–25 through 56.7–49 are added and reserved as follows:

56.7–20 through 56.7–49 [Reserved]

5. Advisory standard 56.7–6 is revised, renumbered, and made mandatory as follows:

56.7–50 *Mandatory.* Receptacles or racks shall be provided for drill steel and tools stored or carried on drills.

6. Advisory standard 56.7–7 is revised, renumbered, and made mandatory as follows:

56.7–51 *Mandatory.* To prevent injury to personnel, tools and other objects shall not be left loose on the mast or drill platform.

7. Standard numbers 56.7–6 and 56.7–7 are reserved as follows:

56.7–6 and 56.7–7 [Reserved]

8. Advisory standard 56.7–15 is revised, renumbered, and made mandatory as follows:

56.7–52 *Mandatory.* Persons shall not drill from—

(a) Positions which hinder their access to the control levers;

(b) Insecure footing or insecure staging; or

(c) Atop equipment not suitable for drilling.

9. Standard numbers 56.7–14, 56.7–15, 56.7–16, and 56.7–17 are reserved as follows:

56.7–14 through 56.7–17 [Reserved]

10. Advisory standard 56.7–19 is revised, renumbered, and made mandatory as follows:

56.7–53 *Mandatory.* Before hand-held drills are moved from one working area to another, air shall be turned off and bled from the hose.

11. Standard number 56.7–19 is reserved as follows:

56.7–19 [Reserved]

12. A series of numbers 56.7–54 through 56.7–100 is added and reserved as follows:

56.7–54 through 56.7–100 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.8 [Amended]

W. Section 56.8 "Rotary jet piercing" is amended as follows:

1. Advisory standard 56.8–1 is revised and made mandatory as follows:

56.8–1 *Mandatory.* Jet piercing drills shall be provided with—

(a) A system to pressurize the equipment operator's cab, when a cab is provided; and

(b) A protective cover over the oxygen flow indicator.

2. Advisory standard 56.8–4 is revised and made mandatory as follows:

56.8–4 *Mandatory.* When rotary jet piercing equipment requires refueling at locations other than fueling stations, a system for fueling without spillage shall be provided.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.9 [Amended]

X. Section 56.9 "Loading, hauling, dumping" is amended as follows:

1. Advisory standard 56.9–8 is revoked, and standard number 56.9–8 is reserved as follows:

56.9–8 [Reserved]

2. Advisory standard 56.9–10 is revised and made mandatory as follows:

56.9–10 *Mandatory.* Equipment operators' cabs shall not be equipped, altered or otherwise modified in a manner which impairs operating visibility.

3. Advisory standard 56.9–16 is revised and made mandatory as follows:

56.9–16 *Mandatory.* Roadbeds, rails, joints, switches, frogs, and other trackage elements on railroads subject to the control of the operator shall be designed, installed and maintained in a safe manner consistent with the speed and type of haulage.

4. Advisory standards 56.9–18 and 56.9–29 are revoked and standard numbers 56.9–18 and 56.9–29 are reserved as follows:

56.9–18 [Reserved]

* * * * *

56.9–29 [Reserved]

5. Advisory standard 56.9–63 is revised and made mandatory as follows:

56.9–63 *Mandatory.* Ramps and dumping facilities shall—

(a) Be of substantial construction; and

(b) Have suitable width, clearance, and headroom to accommodate the equipment using the facilities.

6. Advisory standard 56.9–70 is revised and made mandatory as follows:

56.9–70 *Mandatory.* A tow bar of substantial construction or other suitable means of control shall be used to tow heavy equipment. A substantial safety chain or wire rope shall be used in conjunction with any primary rigging.

7. New mandatory standard 56.9–74 (formerly advisory standard 56.5–4) is added as follows:

56.9–74 *Mandatory.* Dust shall be suitably controlled at muck piles, material transfer points, crushers, and on haulage roads where hazards to personnel may be created as a result of impaired visibility.

8. Advisory standards 56.9–81 and 56.9–82 are revoked, standard numbers 56.9–81 and 56.9–82 are reserved, and reserved standard numbers 56.9–75 through 56.9–80 are revised as follows:

56.9–75 through 56.9–82 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 56.10 [Amended]

Y. Section 56.10 "Aerial tramways" is amended as follows:

1. Advisory standard 56.10–1 is revised and made mandatory as follows:

56.10–1 *Mandatory.* Buckets shall not be overloaded, and feed shall be regulated to prevent spillage.

2. Advisory standard 56.10–2 is revised and made mandatory as follows:

56.10–2 *Mandatory.* Inspection and maintenance of carriers (including loading and unloading mechanisms), ropes and supports, and brakes shall be performed by competent persons according to the recommendations of the manufacturer.

3. Advisory standard 56.10–4 is revised and made mandatory as follows:

56.10–4 *Mandatory.* Positive-action-type brakes and devices which apply the brakes automatically in the event of a power failure shall be provided on aerial tramways.

4. Advisory standard 56.10–5 is revised and made mandatory as follows:

56.10–5 *Mandatory.* Track cable connections shall not obstruct the passage of carriage wheels.

5. Advisory standard 56.10–6 is revised and made mandatory as follows:

56.10–6 *Mandatory.* Towers shall be suitably protected from swaying buckets.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 56.11 [Amended]

Z. Section 56.11 "Travelways and escapeways" is amended as follows:

1. Advisory standard 56.11–4 is revised and made mandatory as follows:

56.11–4 *Mandatory.* Portable rigid ladders shall be provided with suitable bases and placed securely when used.

2. Advisory standard 56.11–7 is revised and made mandatory as follows:

56.11–7 *Mandatory.* Wooden components of ladders shall not be painted except with a transparent finish.

3. Advisory standard 56.11–8 is revoked, and standard number 56.11–8 is reserved as follows:

56.11–8 [Reserved]

4. Advisory standard 56.11–10 is revised and made mandatory as follows:

56.11–10 *Mandatory.* Vertical clearance above stair steps shall be a minimum of seven (7) feet, or suitable warning signs or similar devices shall be provided to indicate an impaired clearance.

5. Advisory standard 56.11–11 is revised and made mandatory as follows:

56.11–11 *Mandatory.* Persons using ladders shall face the ladders and have both hands free for climbing and descending.

6. Advisory standard 56.11–15 is revoked, and standard number 56.11–15 is reserved as follows:

56.11–15 [Reserved]

7. Advisory standard 56.11–17 is revised and made mandatory as follows:

56.11–17 *Mandatory.* Fixed ladders shall not incline backwards.

8. Advisory standard 56.11–25 is revised and made mandatory as follows:

56.11–25 *Mandatory.* Fixed ladders, except on mobile equipment, shall be offset and have substantial railed landings at least every 30 feet unless backguards or equivalent protection, such as safety belts and safety lines, are provided.

9. Advisory standard 56.11–26 is revised and made mandatory as follows:

56.11–26 *Mandatory.* Fixed ladders 70 degrees to 90 degrees from the horizontal and 30 feet or more in length shall have backguards, cages or equivalent protection, starting at a point not more than seven (7) feet from the bottom of the ladders.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 56.12 [Amended]

AA. Section 56.12 "Electricity" is amended as follows:

1. Advisory standard 56.12–4 is revised and made mandatory as follows:

56.12–4 *Mandatory.* Electrical conductors shall be of a sufficient size and current-carrying capacity to ensure that a rise in temperature resulting from normal operations will not damage the insulating materials. Electrical conductors exposed to mechanical damage shall be protected.

2. Advisory standard 56.12–19 is revised and made mandatory as follows:

56.12–19 *Mandatory.* Where access is necessary, suitable clearance shall be provided at stationary electrical equipment or switchgear.

3. Advisory standard 56.12–22 is revised and made mandatory as follows:

56.12–22 *Mandatory.* Areas containing major electrical installations shall be entered only by authorized persons.

4. Advisory standards 56.12–24, 56.12–29, and 56.12–31 are revoked, and standard numbers 56.12–24, 56.12–29, and 56.12–31 are reserved as follows:

56.12–24 [Reserved]

* * * * *

56.12–29 [Reserved]

* * * * *

56.12–31 [Reserved]

5. Advisory standard 56.12–35 is revised and made mandatory as follows:

56.12–35 *Mandatory.* Lamp sockets shall be of a weatherproof type where they are exposed to weather or wet conditions that may interfere with illumination or create a shock hazard.

6. Advisory standard 56.12–38 is revised and made mandatory as follows:

56.12–38 *Mandatory.* Trailing cables shall be attached to machines in a suitable manner to protect the cable from damage and to prevent strain on the electrical connections.

7. Advisory standard 56.12–39 is revised and made mandatory as follows:

56.12–39 *Mandatory.* Surplus trailing cables to shovels, cranes and similar equipment shall be—

(a) Stored in cable boats;

(b) Stored on reels mounted on the equipment; or

(c) Otherwise protected from mechanical damage.

8. Advisory standards 56.12–44 and 56.12–49 are revoked, standard numbers 56.12–44 and 56.12–49 are reserved, and reserved standard number 56.12–43 is revised as follows:

56.12–43 and 56.12–44 [Reserved]

* * * * *

56.12–49 [Reserved]

9. Advisory standard 56.12–50 is revised and made mandatory as follows:

56.12–50 *Mandatory.* Trolley wires shall be installed at least seven (7) feet above rails where height permits, and aligned and supported to suitably control sway and sag.

10. Advisory standards 56.12–51 and 56.12–52 are revoked, and standard numbers 56.12–51 and 56.12–52 are reserved as follows:

56.12–51 and 56.12–52 [Reserved]

11. Advisory standard 56.12–53 is revised and made mandatory as follows:

56.12–53 *Mandatory.* Ground wires for lighting circuits powered from trolley wires shall be connected securely to the ground-return circuit.

12. Advisory standard 56.12–54 is revoked, standard number 56.12–54 is reserved, and reserved standard numbers 56.12–55 through 56.12–64 are revised as follows:

56.12–54 through 56.12–64 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.13 [Amended]

BB. Section 56.13 "Compressed air and boilers" is amended as follows:

1. Advisory standard 56.13–10 is revised and made mandatory as follows:

56.13–10 *Mandatory.* (a) Reciprocating-type air compressors rated over 10 horsepower shall be equipped with automatic temperature-actuated shutoff mechanisms which shall be set or adjusted to the compressor when the normal operating temperature is exceeded by more than 25 percent.

(b) However, this standard does not apply to reciprocating-type air compressors rated over 10 horsepower if equipped with fusible plugs that were installed in the compressor discharge lines before November 15, 1979 and designed to melt at temperatures at least 50 degrees below the flash point of the compressors' lubricating oil.

2. Advisory standard 56.13–11 is revised and made mandatory as follows:

56.13–11 *Mandatory.* Air receiver tanks shall be equipped with one or more automatic pressure-relief valves. The total relieving capacity of the relief valves shall prevent pressure from exceeding the maximum allowable working pressure in a receiver tank by not more than 10 percent. Air receiver tanks also shall be equipped with indicating pressure gages which accurately measure the pressure within the air receiver tanks.

3. Advisory standard 56.13–12 is revised and made mandatory as follows:

56.13–12 *Mandatory.* Compressor air intakes shall be installed to insure that only clean, uncontaminated air enters the compressors.

4. Advisory standards 56.13–13 and 56.13–14 are revoked, and standard numbers 56.13–13 and 56.13–14 are reserved as follows:

56.13–13 and 56.13–14 [Reserved]

5. Advisory standard 56.13–15 is revised and made mandatory as follows:

56.13–15 *Mandatory.* (a) Compressed-air receivers and other unfired pressure vessels shall be inspected by inspectors holding a valid National Board Commission and in accordance with the applicable chapters of the National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979. This code is incorporated by reference and made a part of this standard, may be examined at any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration, and may be obtained from the publisher, the National Board of Boiler and Pressure Vessel Inspector, 1055 Crupper Avenue, Columbus, Ohio 43229.

(b) Records of inspection shall be kept in accordance with requirements of the National Board Inspection Code, and the records shall be made available to the Secretary or his authorized representative.

6. Advisory standard 56.13–16 is revoked, and standard number 56.13–16 is reserved as follows:

56.13–16 [Reserved]

7. Advisory standard 56.13–17 is revised and made mandatory as follows:

56.13–17 *Mandatory.* Compressor discharge pipes where carbon build-up may occur shall be cleaned periodically as recommended by the manufacturer, but no less frequently than once every two (2) years.

8. Advisory standard 56.13–18 is revoked, and standard number 56.13–18 is reserved as follows:

56.13–18 [Reserved]

9. Advisory standard 56.13–30 is revised and made mandatory as follows:

56.13–30 *Mandatory.* (a) Fired pressure vessels (boilers) shall be equipped with water level gages, pressure gages, automatic pressure-relief valves, blowdown piping, and other safety devices approved by the American Society of Mechanical Engineers to

protect against hazards from overpressure, flameouts, fuel interruptions and low water level, all as required by the appropriate sections, chapters and appendices listed in paragraph (b) (1) and (2) below.

(b) These gages, devices and piping shall be designed, installed, operated, maintained, repaired, altered, inspected, and tested by inspectors holding a valid National Board Commission and in accordance with the following listed sections, chapters and appendices:

(1) The ASME Boiler and Pressure Vessel Code, 1977, published by the American Society of Mechanical Engineers.

Section and Title

I Power Boilers
II Material Specifications—Part A—Ferrous
II Material Specifications—Part B—Nonferrous
II Material Specifications—Part C—Welding Rods, Electrodes, and Filler Metals
IV Heating Boilers
V Nondestructive Examination
VI Recommended Rules for Care and Operation of Heating Boilers
VII Recommended Rules for Care of Power Boilers

(2) The National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979, published by the National Board of Boiler and Pressure Vessel Inspectors.

Chapter and Title

I Glossary of Terms
II Inspection of Boilers and Pressure Vessels
III Repairs and Alterations to Boiler and Pressure Vessels by Welding
IV Shop Inspection of Boilers and Pressure Vessels
V Inservice Inspection of Pressure Vessels by Authorized Owner-User Inspection Agencies

Appendix and Title

A Safety and Safety Relief Valves
B Non-ASME Code Boilers and Pressure Vessels
C Storage of Mild Steel Covered Arc Welding Electrodes
D-R National Board "R" (Repair) Symbol Stamp
D-VR National Board "VR" (Repair of Safety and Safety Relief Valve) Symbol Stamp
D-VR1 Certificate of Authorization for Repair Symbol Stamp for Safety and Safety Relief Valves
D-VR2 Outline of Basic Elements of Written Quality Control System for Repairers of ASME Safety and Safety Relief Valves
D-VR3 Nameplate Stamping for "VR"
E Owner-user Inspection Agencies
F Inspection Forms

(c) Records of inspections and repairs shall be kept in accordance with the requirements of the ASME Boiler and Pressure Vessel Code and the National Board Inspection Code. The records shall be made available to the Secretary or his authorized representative.

(d) Sections of the ASME Boiler and Pressure Vessel Code, 1977, listed in paragraph (b)(1) above, and chapters and appendices of the National Board Inspection Code, 1979, listed in paragraph (b)(2) above, are incorporated by reference and made a part of this standard. These publications may be obtained from the publishers, the American Society of Mechanical Engineers, 345 East Forty-seventh Street, New York, N.Y. 10017, and the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

The publications may be examined at any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration.

10. Advisory standards 56.13–31, 56.13–32, 56.13–33, and 56.13–34 are revoked, and standard numbers 56.13–31, 56.13–32, 56.13–33, and 56.13–34 are reserved as follows:

§ 56.13–31 through 56.13–34 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.14 [Amended]

CC. Section 56.14 "Use of equipment" is amended as follows:

1. Advisory standard 56.14–3 is revised and made mandatory as follows:

56.14–3 *Mandatory.* Guards at conveyor-drive, conveyor-head, and conveyor-tail pulleys shall extend a distance sufficient to prevent a person from accidentally reaching behind the guard and becoming caught between the belt and the pulley.

2. Advisory standards 56.14–4, and 56.14–5 are revoked, and standard numbers 56.14–4 and 56.14–5 are reserved as follows:

§ 56.14–4 and 56.14–5 [Reserved]

3. Advisory standard 56.14–7 is revised and made mandatory as follows:

56.14–7 *Mandatory.* Guards shall be of substantial construction and properly maintained.

4. Advisory standard 56.14–11 is revised and made mandatory as follows:

56.14–11 *Mandatory.* Guards, shields, or other suitable protection shall be provided in areas where flying or falling materials present a hazard to personnel.

5. Advisory standard 56.14–25 is revoked, and standard number 56.14–25 is reserved as follows:

56.14–25 [Reserved]

6. Advisory standard 56.14–27 is revised and made mandatory as follows:

56.14–27 *Mandatory.* Operation of machinery or equipment shall be assigned only to competent persons.

7. Advisory standard 56.14–28 is revoked, and standard number 56.14–28 is reserved as follows:

56.14–28 [Reserved]

8. Advisory standard 56.14–36 is revised and made mandatory as follows:

56.14–36 *Mandatory.* Tools and equipment shall not be used beyond the design capacity intended by the manufacturer, where such use may create a hazard to personnel.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.15 [Amended]

DD. Section 56.15 "Personal protection" is amended as follows:

1. Advisory standards 56.15–8, 56.15–9, 56.15–10, 56.15–11, and 56.15–13 are revoked, standard numbers 56.15–8, 56.15–9, 56.15–10, 56.15–11, 56.15–12 (Revoked July 1, 1974, 39 FR 24318), and 56.15–13 are reserved, and reserved standard numbers 56.15–14 through 56.15–19 are revised as follows:

56.15–8 through 56.15–19 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.16 [Amended]

EE. Section 56.16 "Materials storage and handling" is amended as follows:

1. Advisory standard 56.16–1 is revised and made mandatory as follows:

56.16–1 *Mandatory.* Supplies shall not be stacked or stored in a manner which creates tripping or fall-of-material hazards.

2. Advisory standard 56.16–2 is revised and made mandatory as follows:

56.16–2 *Mandatory.* (a) Bins, hoppers, silos, tanks, and surge piles, where loose unconsolidated materials are stored, handled or transferred shall be—

(1) Equipped with mechanical devices or other effective means of handling materials so that during normal operations persons are not required to enter or work where they are exposed to entrapment by the caving or sliding of materials; and

(2) Equipped with supply and discharge operating controls. The controls shall be located so that spills or overruns will not endanger persons.

(b) Where persons are required to move around or over any facility listed in this standard, suitable walkways or passageways shall be provided.

(c) Where persons are required to enter any facility listed in this standard for maintenance or inspection purposes, ladders, platforms, or staging shall be provided. No person shall enter the facility until the supply and discharge of materials have ceased and the supply and discharge equipment is locked out. Persons entering the facility shall wear a safety belt or harness equipped with a lifeline

suitably fastened. A second person, similarly equipped, shall be stationed near where the lifeline is fastened and shall constantly adjust it or keep it tight as needed, with minimum slack.

3. Advisory standard 56.16–7 is revised and made mandatory as follows:

56.16–7 *Mandatory.* (a) Taglines shall be attached to loads that may require steadying or guidance while suspended.

(b) Hitches and slings used to hoist materials shall be suitable for the particular material handled.

4. Advisory standard 56.16–8 is revoked, and standard number 56.16–8 is reserved as follows:

56.16–8 [Reserved]

5. Advisory standard 56.16–10 is revised and made mandatory as follows:

56.16–10 *Mandatory.* To protect personnel, material shall not be dropped from an overhead elevation until the drop area is first cleared of personnel and the area is then either guarded or a suitable warning is given.

6. Advisory standard 56.16–12 is revised and made mandatory as follows:

56.16–12 *Mandatory.* Chemical substances, including concentrated acids and alkalies, shall be stored to prevent inadvertent contact with each other or with other substances, where such contact could cause a violent reaction or the liberation of harmful fumes or gases.

7. Advisory standard 56.16–13 is revised and made mandatory as follows:

56.16–13 *Mandatory.* Suitable warning shall be given before molten metal is poured and before a container of molten metal is moved.

8. Advisory standard 56.16–16 is revised and made mandatory as follows:

56.16–16 *Mandatory.* Fork and other similar types of lift trucks shall be operated with the—

(a) Upright tilted back to steady and secure the load;

(b) Load in the upgrade position when ascending or descending grades in excess of 10 percent;

(c) Load not raised or lowered enroute except for minor adjustments; and

(d) Load-engaging device downgrade when traveling unloaded on all grades.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.18 [Amended]

FF. Section 56.18 "Safety programs" is amended as follows:

1. Advisory standard 56.18–1 is revoked, and standard number 56.18–1 is reserved as follows:

56.18–1 [Reserved]

2. Advisory standard 56.18–2 is revised and made mandatory as follows:

56.18–2 *Mandatory.* (a) A competent person designated by the operator shall examine each working place at least once each shift for conditions which may adversely affect safety or health. The operator shall promptly initiate appropriate action to correct such conditions.

(b) A record that such examinations were conducted shall be kept by the operator for a period of one (1) year, and shall be made available for review by the Secretary or his authorized representative.

(c) In addition, conditions that may present an imminent danger which are noted by the person conducting the examination shall be brought to the immediate attention of the operator who shall withdraw all persons from the area affected (except persons referred to in section 104(c) of the Federal Mine Safety and Health Act of 1977) until the danger is abated.

3. Advisory standards 56.18–3, 56.18–4, 56.18–5, 56.18–7, and 56.18–8 are revoked, and standard numbers 56.18–3, 56.18–4, 56.18–5, 56.18–7, and 56.18–8 are reserved as follows:

56.18–3 through 56.18–5 [Reserved]

* * * * *

56.18–7 and 56.18–8 [Reserved]

4. Advisory standard 56.18–9 is revised and made mandatory as follows:

56.18–9 *Mandatory.* When persons are working at the mine, a competent person designated by the mine operator shall be in attendance to take charge in case of an emergency.

5. Advisory standard 56.18–11 is revoked, and standard number 56.18–11 is reserved as follows:

56.18–11 [Reserved]

6. Advisory standard 56.18–13 is revised and made mandatory as follows:

56.18–13 *Mandatory.* A suitable communication system shall be provided at the mine to obtain assistance in the event of an emergency.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.19 [Amended]

GG. Section 56.19 "Man hoisting" is amended as follows:

1. The paragraph immediately following the heading "§ 56.19 Man hoisting" is revised as follows:

The hoisting standards in this section apply to those hoists and appurtenances used for hoisting persons. However, where persons may be endangered by hoists and appurtenances used solely for handling ore, rock, and materials, the appropriate standards should be applied.

Emergency hoisting facilities should conform to the extent possible to safety requirements for other hoists, and should be adequate to remove the persons from the mine with a minimum of delay.

2. Advisory standard 56.19–12 is revised and made mandatory as follows:

56.19–12 *Mandatory.* Where grooved drums are used, the grooves shall be of suitable size and pitch for the ropes used.

3. Advisory standards 56.19–20 and 56.19–25 are revoked, and standard numbers 56.19–20 and 56.19–25 are reserved as follows:

56.19–20 [Reserved]

* * * * *

56.19–25 [Reserved]

4. Advisory standard 56.19–35 is revised and made mandatory as follows:

56.19–35 *Mandatory.* All headframes shall be constructed with suitable design considerations to allow for all dead loads, live loads, and wind loads.

5. Advisory standard 56.19–36 is revised and made mandatory as follows:

56.19–36 *Mandatory.* Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyance.

6. Advisory standard 56.19–37 is revised and made mandatory as follows:

56.19–37 *Mandatory.* Fleet angles on hoists installed after February 13, 1980 shall not be greater than one and one-half degrees for smooth drums or two degrees for grooved drums.

7. Advisory standard 56.19–39 is revised and made mandatory as follows:

56.19–39 *Mandatory.* All personnel hoists, except emergency escape hoists and hoists with rope speeds of 200 feet per minute or less, installed after November 15, 1979, shall have drum and sheave tread diameters—

(1) Not less than 60 times the hoist rope diameter for slope or inclined shaft applications;

(2) Not less than 80 times the hoist rope diameter if the hoist ropes are one inch in diameter or greater, or not less than 60 times the hoist rope diameter if the hoist ropes are less than one inch in diameter for vertical shaft applications; or

(3) Not less than 100 times the hoist rope diameter for locked coil ropes.

8. Advisory standard 56.19–67 is revised and made mandatory as follows:

56.19–67 *Mandatory.* During shift changes, an authorized person shall be in charge of each trip in which persons are hoisted.

9. Advisory standard 56.19–72 is revised and made mandatory as follows:

56.19–72 *Mandatory.* When combinations of cages and skips are used in the same compartment, the cages shall be enclosed to protect personnel from flying material and the hoist speed reduced to man-speed as defined in standard 56.19–61, but not to exceed 1,000 feet per minute. Muck shall not be hoisted with personnel during shift changes.

10. Advisory standard 56.19–74 is revised and made mandatory as follows:

56.19–74 *Mandatory.* Persons shall not ride the bail, rim, bonnet, or crosshead of any shaft conveyance except when necessary for inspection and maintenance, and then only when suitable protection for persons is provided.

11. Advisory standard 56.19–81 is revised and made mandatory as follows:

56.19–81 *Mandatory.* When conveyances controlled by a hoist operator are not in use, they shall be released and the conveyances shall be raised or lowered a suitable distance to prevent persons from boarding or loading the conveyances.

12. Advisory standard 56.19–91 is revised and made mandatory as follows:

56.19–91 *Mandatory.* Hoist operators shall accept hoisting instructions only by the regular signaling system unless it is out of order. In such an event, and during other emergencies, the hoist operator shall accept instructions to direct movement of the conveyances only from authorized persons.

13. Advisory standard 56.19–93 is revised and made mandatory as follows:

56.19–93 *Mandatory.* A standard code of hoisting signals shall be adopted and used at each mine. The movement of a shaft conveyance on a "one bell" signal is prohibited.

14. Advisory standard 56.19–104 is revised and made mandatory as follows:

56.19–104 *Mandatory.* Suitable clearance at shaft stations shall be provided to allow safe movement of persons, equipment and materials.

15. Advisory standard 56.19–124 is revised and made mandatory as follows:

56.19–124 *Mandatory.* Hoist ropes other than those on friction hoists shall be cut off at least six (6) feet above the highest connection to the conveyance at time intervals not to exceed one (1) year unless a shorter time is required by standard 56.19–126, or by conditions of use. The portion of the rope that is cut off shall be examined and inspected by a competent person for damage, corrosion, wear and fatigue.

16. Advisory standard 56.19–125 is revised and made mandatory as follows:

56.19–125 *Mandatory.* Hoist ropes wound in multiple layers shall have a length cut off at the drum end at least three (3) times during the anticipated life of the rope and whenever necessary as required by standard 56.19–126 to distribute the wear at change-of-layer and crossover points. The length of rope cut off shall not be a whole number multiple of the circumference of the drum.

17. Advisory standard 56.19–126 is revised and made mandatory as follows:

56.19–126 *Mandatory.* Hoist ropes shall be examined over the entire active length at least every month to evaluate wear and possible damage. When such examinations or other inspections reveal that the rope is worn, and at least every six (6) months, caliper measurements or nondestructive tests shall be made at the following locations:

(a) Wherever wear is evident;

(b) Immediately above the socket or clips and above the safety connection;

(c) Where the rope rests on the sheaves;

(d) Where the ropes leave the drums when the conveyances are at the regular stopping point;

(e) Where a layer of rope begins to overlap another layer on the drum; and

(f) At 100 foot intervals (measurements shall be made midway between the last previously calipered points).

18. Advisory standard 56.19–127 is revoked, and standard number 56.19–127 is reserved as follows:

56.19–127 [Reserved]

19. Advisory standard 56.19–130 is revised and made mandatory as follows:

56.19–130 *Mandatory.* Before hoisting persons and to assure that the hoisting compartments are clear of obstructions, empty hoist conveyances shall be operated at least one round trip after—

(a) Any hoist or shaft repairs or related equipment repairs that might restrict or obstruct conveyance clearance;

(b) Any oversize or overweight material or equipment trips that might restrict or obstruct conveyance clearance;

(c) Blasting in or near the shaft that might restrict or obstruct coveyance clearance; or

(d) Remaining idle for one shift or longer.

20. Advisory standard 56.19–131 is revised and made mandatory as follows:

56.19–131 *Mandatory.* Hoist conveyance connections shall be inspected at least once during any 24-hour period that the conveyance is used for hoisting persons.

21. Advisory standard 56.19–132 is revised and made mandatory as follows:

56.19–132 *Mandatory.* (a) A performance drop test of hoist conveyance safety catches shall be made at the time of installation, or prior to installation, in a mockup of the actual installation. The test shall be certified to in writing by the manufacturer or by a registered professional engineer performing the test.

(b) After installation and before use, and at the beginning of any seven (7) day period during which the conveyance is to be used, the conveyance shall be suitably rested and the hoist rope slackened to test for the unrestricted functioning of the safety catches and their activating mechanisms.

(c) The safety catches shall be inspected by a competent person at the beginning of any 24-hour period that the conveyance is to be used.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 56.20 [Amended]

HH. Section 56.20 "Miscellaneous" is amended as follows:

1. Advisory standards 56.20–4, 56.20–6, and 56.20–7 are revoked, and standard numbers 56.20–4, 56.20–6, and 56.20–7 are reserved as follows:

56.20–4 [Reserved]

* * * * *

56.20–6 and 56.20–7 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

PART 57—HEALTH AND SAFETY

Standards—Metal and Nonmetal Underground Mines

Part 57, Subchapter N, Chapter I, Title 30, Code of Federal Regulations is amended and revised as follows:

§ 57.3 [Amended]

II. Section 57.3 "Ground control" is amended as follows:

1. Advisory standards 57.3–7, 57.3–10, 57.3–13, 57.3–21, and 57.3–28 are revoked, standard numbers 57.3–7, 57.3–10, 57.3–13, 57.3–21, and 57.3–28 are reserved, and reserved standard numbers 57.3–11, 57.3–14 through 57.3–19, 57.3–23, 57.3–24, 57.3–25, and 57.3–27 are revised as follows:

57.3–7 [Reserved]

* * * * *

57.3–10 and 57.3–11 [Reserved]

* * * * *

57.3–13 through 57.3–19 [Reserved]

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57.3–21 [Reserved]

* * * * *

57.3–23 through 57.3–25 [Reserved]

* * * * *

57.3–27 and 57.3–28 [Reserved]

2. Advisory standard 57.3–29, which is applicable to underground only, is revised and made mandatory as follows:

57.3–29 *Mandatory.* Shaft pillars or other support systems shall have sufficient strength to support operating shafts.

3. Advisory standards 57.3–30 and 57.3–31 are revoked, and standard numbers 57.3–30 and 57.3–31 are reserved as follows:

57.3–30 and 57.3–31 [Reserved]

4. Advisory standard 57.3–32, which is applicable to underground only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.3–58 *Mandatory.* When rock bolts are needed for ground support, they shall be installed as soon as practicable after an area is exposed.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.4 [Amended]

JJ. Section 57.4 "Fire Prevention and control is amended as follows:

1. Advisory standard 57.4–3, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–3 *Mandatory.* Areas surrounding electric substations and unburied tanks used for the storage of flammable or combustible liquids shall be free of combustible materials (including dry vegetation) for a distance of at least 25 feet.

2. Advisory standard 57.4–5, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–5 *Mandatory.* Effective February 13, 1980, fixed unburied tanks used for the storage of flammable or combustible liquids shall be securely mounted on firm foundations. Where necessary to prevent leaks caused by tanks settling, piping shall be provided with flexible connections or other special fittings.

3. Advisory standard 57.4–7, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–7 *Mandatory.* Means shall be provided to remove or control spilled flammable or combustible liquids.

4. Advisory standard 57.4–49, which is applicable to surface only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.4–12 *Mandatory.* All flammable and combustible waste materials, grease, lubricants or flammable liquids shall not be allowed to accumulate where they can create a fire hazard.

5. Advisory standard 57.4–13, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–13 *Mandatory.* In areas where materials such as oily waste or oily rags create a fire hazard, the materials shall be placed in covered metal containers until disposed of properly.

6. Advisory standard 57.4–16, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–16 *Mandatory.* Drip pans shall be provided to catch leakage or spillage whenever combustible or flammable liquids are dispensed in a place or manner which may create a fire hazard. Floor areas where drip pans are used shall be cleaned immediately after spills.

7. Advisory standard 57.4–17 is revoked, and standard number 57.4–17 is reserved as follows:

57.4–17 [Reserved]

8. Advisory standard 57.4–25, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–25 *Mandatory.* Effective February 13, 1980, whenever fire hydrants are used, they shall be provided with—

(a) Uniform fittings;

(b) Readily available wrenches or keys to open the valves; and

(c) Readily available adapters that connect hydrant fittings to the hose equipment of local fire departments.

9. Advisory standard 57.4–26, which is applicable to surface and underground, is revised and made mandatory as follows:

57.4–26 *Mandatory.* Water pipes, valves, outlets, hydrants, and hoses designated for fire fighting purposes shall be inspected every 90 days and tested annually.

10. Advisory standard 57.4–39, which is applicable to surface only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.4–27 *Mandatory.* Whenever self-propelled mobile equipment is used, such equipment shall be provided with a suitable fire extinguisher readily accessible to the equipment operator.

11. Advisory standard 57.4–30 is revoked.

12. Standard number 57.4–39 of action JJ(10) above is replaced with a series of numbers 57.4–39A through 57.4–39Z, and numbers 57.4–39C through 57.4–39Z are reserved as follows:

57.4–39C through 57.4–39Z [Reserved]

13. Advisory standard 57.4–6, which is applicable to surface and underground, is revised, renumbered, and made mandatory and applicable to surface only as follows:

57.4–39A *Mandatory.* Effective February 13, 1980, storage buildings or rooms in which flammable or combustible liquids or other flammable materials are stored and which are within 100 feet of where miners normally work shall be well-ventilated and constructed of materials having a fire-resistance rating of no less than one (1) hour as tested under the appropriate National Fire Protection Association (NFPA) fire-resistance test or under a test of another approved testing agency.

14. Standard number 57.4–6 is reserved as follows:

57.4–6 [Reserved]

15. Advisory standard 57.4–31, which is applicable to surface and underground, is revised, renumbered, and made mandatory and applicable to surface only as follows:

57.4–39B *Mandatory.* Emergency fire fighting plans in combination with evacuation and rescue plans shall be established and coordinated with available fire fighting organizations. Emergency fire fighting drills shall be held for each shift at least once every six (6) months.

16. Standard numbers 57.4–30 of action JJ(11) and 57.4–31 of action JJ(15) above are reserved, and reserved standard number 57.4–32 is revised as follows:

57.4–30 through 57.4–32 [Reserved]

17. Advisory standard 57.4–41, which is applicable to surface only, is revised and made mandatory as follows:

57.4–41 *Mandatory.* Every building or structure where persons normally work shall be provided with exits sufficient to permit the prompt excape of persons in case of fire.

18. Advisory standards 57.4–42 and 57.4–44, which are applicable to surface only, are combined, revised, and made mandatory as follows:

57.4–42 *Mandatory.* (a) No combustible materials shall be permitted within 100 feet of main and booster fans and mine openings, except for one day's requirements of mine materials or supplies. However, such supplies or materials shall not be permitted within 25 feet of mine openings.

(b) In this standard, the phrase "combustible materials" includes dry vegetation which is within 25 feet of mine openings but does not include installed wiring, ground support and track support, headframes, any materials in transit, or any buildings and other structures in compliance with standard 57.4–43.

19. Advisory standard 57.4–43, which is applicable to surface only, is revised and made mandatory as follows:

57.4–43 *Mandatory.* (a) Buildings and other similar structures, which are within 100 feet of mine openings used for intake air and mine openings that are designated escapeways in exhaust air, shall be constructed of materials having a fire-resistance rating of no less than one (1) hour as tested under the appropriate National Fire Protection Association (NFPA) fire-resistance test or under a test of another approved testing agency.

(b) An automatic fire suppression system may be substituted for the requirements of paragraph (a)—

(1) In buildings and structures occupied or in use on November 15, 1979, if the system is in operating condition by February 13, 1979; or

(2) In buildings and structures under construction on November 15, 1979, if the system is in operating condition prior to occupancy or use.

20. Standard number 57.4–44 of action JJ(18) above is reserved as follows:

§ 57.4–44 [Reserved]

21. Advisory standard 57.4–45, which is applicable to surface only, is revised and made mandatory as follows:

57.4–45 *Mandatory.* Blacksmith shops shall be—

(a) Well ventilated and equipped with exhaust vents over the forge;

(b) Inspected specifically for smoldering fires at the end of each shift;

(c) Constructed of materials having a fire-resistance rating of no less than one (1) hour as tested under the appropriate National Fire Protection Association (NFPA) fire-resistance test or under a test of another approved testing agency; and

(d) Located at least 100 feet from the mine openings or fan installations, and not in buildings or snowsheds adjoining mine openings or fan installations unless fire doors and walls, constructed according to the requirements of paragraph (c) of this standard, are provided between the blacksmith shop and the mine openings or fan installations.

22. Advisory standard 57.4–47, which is applicable to surface only, is revised and made mandatory as follows:

57.4–47 *Mandatory.* Belt conveyors shall be equipped with a safety switch capable of automatically stopping the drive pulley in the event of excessive slippage of the belt, where ignition of the belt could create a hazard to personnel. When it is necessary to operate the conveyor while temporarily by-passing the safety switch or any automatic function of the swtich, a person shall attend the belt at the drive pulley.

23. Standard number 57.4–49 of action JJ (4) is reserved as follows:

57.4–49 [Reserved]

24. Advisory standard 57.4–55, which is applicable to underground only, is revised and made mandatory as follows:

57.4–55 *Mandatory.* Transformer stations, pump rooms, compressor rooms and similar installations, which are located in timbered areas or in areas where exposed rock is combustible, shall be provided with suitable fire protection.

25. Advisory standard 57.4–56, is revoked, and standard number 57.4–56 is reserved as follows:

57.4–56 [Reserved]

26. Advisory standard 57.4–57, which is applicable to underground only, is revised and made mandatory as follows:

57.4–57 *Mandatory.* Effective November 12, 1980, trailing cables shall be flame-resistant in accordance with 30 CFR 18.64.

27. Advisory standard 57.4–60 is revoked, and standard number 57.4–59 is revised as follows:

57.4–59 and 57.4–60 [Reserved]

28. Advisory standard 57.4–61, which is applicable to underground only, is revised and divided into two standards numbered 57.4–61A and 57.4–61B. Both standards 57.4–61A and 57.4–61B are made mandatory and applicable to underground only as follows:

57.4–61A *Mandatory.* To prevent the spread of smoke or gas in the event of a fire, ventilation doors shall be installed at or near shaft stations of intake shafts and at any shaft designated as an escapeway under standard 57.11–53, or at other locations which provide equivalent protection. Effective February 13, 1980, the location (and relocation) of doors required by this standard shall be submitted to the District Manager for the district in which the mine is located, for review and approval by the Secretary.

Doors required by this standard shall be—

(a) Constructed and maintained in accordance with standard 57.5–31;

(b) Constructed according to the specifications within the definition of "fire door" in section 57.2, if located in a timbered area, in an area where the exposed rock is combustible, or in an area where a significant fire hazard is present;

(c) Provided with a means of remote closure unless other means of closing the door are assured;

(d) Constructed so that, once closed, they will not reopen as a result of a differential in air pressure;

(e) Constructed so that they can be opened from either side by one person, or provided with a man door that can be opened from either side; and

(f) Kept clear of obstructions and extraneous materials.

57.4–61B *Mandatory.* (a) To confine or prevent the spread of toxic gases from a fire originating in an underground shop, the mine operator shall install in each opening to the shop a fire door or bulkhead constructed in accordance with the definition of "fire door" contained in section 57.2

(b) Each fire door shall be—

(1) Constructed so that, once closed, it will not reopen as a result of a differential in air pressure;

(2) Constructed so that it can be opened from either side by one person or be provided with a man door that can be opened from either side;

(3) Suitably airtight; and

(4) Kept clear of obstructions and extraneous materials.

(c) This standard does not apply when mine shop exhaust air is routed directly to an exhaust system in such a manner that personnel would not be exposed to toxic gases in the event of a fire originating in the underground shop.

29. Advisory standard 57.4–62, which is applicable to underground only, is revised and made mandatory as follows:

57.4–62 *Mandatory.* Timber in mine entrances shall be fire-retardant to the extent that the flame spread rating shall be 25 or less for at least 200 feet inside the mine portal or collar, or the mine entrance shall be provided with fire protection capable of controlling a fire for at least 200 feet inside the mine portal or collar.

30. Advisory standard 57.4–63, which is applicable to underground only, is revised and made mandatory as follows:

57.4–63 *Mandatory.* Waterline outlets located at shaft stations shall have at least one fitting suitably located for, and capable of, immediate connection to fire fighting equipment.

31. Advisory standard 57.4–64 is revoked, and standard number 57.4–64 is reserved as follows:

57.4–64 [Reserved]

32. Advisory standard 57.4–66, which is applicable to underground only, is revised and made mandatory as follows:

57.4–66 *Mandatory.* Suitable fire protection shall be provided at the head, tail, drive, and takeup pulleys of belt conveyors and at intervals along the belt line.

33. Advisory standards 57.4–68 and 57.4–71 are revoked, and standard numbers 57.4–68 and 57.4–71 are reserved as follows:

57.4–68 [Reserved]

* * * * *

57.4–71 [Reserved]

34. Advisory standard 57.4–72, which is applicable to underground only, is revised and made mandatory as follows:

57.4–72 *Mandatory.* Only trained mine rescue team members shall participate in rescue and fire fighting operations in advance of the fresh air base.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.5 [Amended]

KK. Section 57.5 "Air quality, ventilation, radiation, and physical agents" is amended as follows:

1. Advisory standard 57.5–4 is revised, transferred to Section 57.9 "Loading, hauling, dumping," renumbered 57.9–74, and standard number 57.5–4 is reserved as follows:

57.5–4 [Reserved]

2. Advisory standards 57.5–21 and 57.5–23 are revoked, standard numbers 57.5–21 and 57.5–23 are reserved, and reserved standard numbers 57.5–20 and 57.5–24 are revised as follows:

57.5–20 and 57.5–21 [Reserved]

* * * * *

57.5–23 and 57.5–24 [Reserved]

3. Advisory standard 57.5–25, which is applicable to underground only, is revised and made mandatory as follows:

57.5–25 *Mandatory.* Main fans shall be maintained according to either the manufacturer's recommendations or a written periodic schedule adopted by the operator which shall be available at the operation on request of the secretary or his authorized representative.

4. Advisory standard 57.5–26 is revoked, and standard number 57.5–26 is reserved as follows:.

57.5–26 [Reserved]

5. Advisory standard 57.5–27, which is applicable to underground only, is revised and made mandatory as follows:

57.5–27 *Mandatory.* Flame safety lamps or other suitable devices shall be used to test for acute oxygen deficiency.

6. Advisory standard 57.5–29, which is applicable to underground only, is revised and made mandatory as follows:

57.5–29 *Mandatory.* When auxiliary fan systems are used, such systems shall minimize recirculation and be maintained to provide ventilation air that effectively sweeps the working places.
(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 1961(b)(2)).)

§ 57.6 [Amended]

LL. Section 57.6 "Explosives" is amended as follows:

1. Advisory standards 57.6–3, 57.6–4, 57.6–28, and 57.6–78 are revoked, standard numbers 57.6–3, 57.6–4, 57.6–28, and 57.6–78 are reserved, and reserved standard numbers 57.6–79 through 57.6–89 are revised as follows:

57.6–3 and 57.6–4 [Reserved]

* * * * *

57.6–28 [Reserved]

* * * * *

57.6–78 through 57.6–89 [Reserved]

2. Advisory standard 57.6–130, which is applicable to surface and underground, is revised and made mandatory as follows:

57.6–130 *Mandatory.* At least a 15-foot air gap shall be provided between the blasting circuit and the electric power source.

3. Advisory standard 57.6–178, which is applicable to underground only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.6–141 *Mandatory.* In secondary blasting, if more than one shot is to be fired at one time in a blasting area, the shots shall be initiated from one source.

4. Standard number 57.6–178 is reserved as follows:

57.6–178 [Reserved]

5. Advisory standard 57.6–181 is revoked, and standard number 57.6–181 is reserved as follows:

57.6–181 [Reserved]

6. Advisory standards 57.6–190, 57.6–192, and 57.6–196 are revoked, standard numbers 57.6–190, 57.6–192, and 57.6–196 are reserved, and reserved standard numbers 57.6–191 and 57.6–197 are revised as follows:

57.6–190 through 57.6–192 [Reserved]

* * * * *

57.6–196 and 57.6–197 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.7 [Amended]

MM. Section 57.7 "Drilling" is amended as follows:

1. Advisory standard 57.7–1 is revoked, and standard number 57.7–1 is reserved as follows:

57.7–1 [Reserved]

2. Advisory standard 57.7–9, which is applicable to surface only, is revised and made mandatory as follows:

57.7–9 *Mandatory.* If a drill helper assists the drill operator during movement of a drill to a new location, the helper shall be in sight of, or in communication with, the operator at all times.

3. Advisory standards 57.7–14, 57.7–16, 57.7–17, 57.7–25, 57.7–26, and 57.7–27 are revoked, and standard numbers 57.7–25, 57.7–26, and 57.7–27 are reserved as follows:

57.7–25 through 57.7–27 [Reserved]

4. Advisory standard 57.7–28, which is applicable to underground only, is revised and made mandatory as follows:

57.7–28 *Mandatory.* Persons shall not rest their hands on the chuck or centralizer while drilling.

5. Advisory standards 57.7–29 and 57.7–30 are revoked.

6. Advisory standard 57.7–32, which is applicable to underground only, is revised and made mandatory as follows:

57.7–32 *Mandatory.* Columns and the drills mounted on them shall be anchored firmly before and during drilling.

7. New standard numbers 57.7–33 through 57.7–49 are added and reserved, a new center subheading entitled "General Surface and Underground" is added immediately below the reserved standard numbers 57.7–33 through 57.7–49, and advisory standard 57.7–6, which is applicable to surface only, is revised, renumbered, made mandatory and applicable to surface and underground, and placed immediately below the center heading as follows:

57.7–33 through 57.7–49 [Reserved]

General—Surface and Underground

57.7–50 *Mandatory.* Receptacles or racks shall be provided for drill steel and tools stored or carried on drills.

8. Advisory standard 57.7–7, which is applicable to surface only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.7–51 *Mandatory.* To prevent injury to personnel, tools and other objects shall not be left loose on the mast or drill platform.

9. Standard numbers 57.7–6 and 57.7–7 are reserved as follows:

57.7–6 and 57.7–7 [Reserved]

10. Advisory standard 57.7–15, which is applicable to surface only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.7–52 *Mandatory.* Persons shall not drill from—

(a) Positions which hinder their access to the control levers;

(b) Insecure footing or insecure staging; or

(c) Atop equipment not suitable for drilling.

11. Standard number 57.7–15 and standard numbers 57.7–14, 57.7–16, and 57.7–17 of action LL (3) above are reserved as follows:

57.7–14 through 57.7–17 [Reserved]

12. Advisory standard 57.7–19, which is applicable to surface only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.7–53 *Mandatory.* Before hand-held drills are moved from one working area to another, air shall be turned off and bled from the hose.

13. Standard number 57.7–19 is reserved, and reserved standard numbers 57.7–20 through 57.7–24 are revised as follows:

57.7–19 through 57.7–24 [Reserved]

14. Advisory standard 57.7–31, which is applicable to underground only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.7–54 *Mandatory.* Drill operators shall not start or move drilling equipment unless all miners are in the clear.

15. Standard number 57.7–31 of action LL (14) above and standard numbers 57.7–29 and 57.7–30 of action LL (5) above are reserved as follows:

57.7–29 through 57.7–31 [Reserved]

16. A series of numbers 57.7–55 through 57.7–100 is added and reserved as follows:

57.7–55 through 57.7–100 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 57.8 [Amended]

MM. Section 57.8 "Rotary jet piercing" is amended as follows:

1. Advisory standard 57.8–1, which is applicable to surface only, is revised and made mandatory as follows:

57.8–1 *Mandatory.* Jet Piercing drills shall be provided with—

(a) A system to pressurize the equipment operator's cab, when a cab is provided; and

(b) A protective cover over the oxygen flow indicator.

2. Advisory standard 57.8–4, which is applicable to surface only, is revised and made mandatory as follows:

57.8–4 *Mandatory.* When rotary jet piercing equipment requires refueling at locations other than fueling stations, a system for fueling without spillage shall be provided.

(301(b)(2), Pub. L. 96–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 57.9 [Amended]

NN. Section 57.9 "Loading, hauling, dumping" is amended as follows:

1. Advisory standard 57.9–8 is revoked, and standard number 57.9–8 is reserved as follows:

57.9–8 [Reserved]

2. Advisory standard 57.9–10, which is applicable to surface and underground, is revised and made mandatory as follows:

57.9–10 *Mandatory.* Equipment operators' cabs shall not be equipped, altered or otherwise modified in a manner which impairs operating visibility.

3. Advisory standard 57.9–16, which is applicable to surface and underground, is revised and made mandatory as follows:

57.9–16 *Mandatory.* Roadbeds, rails, joints, switches, frogs, and other trackage elements on railroads subject to the control of the operator shall be designed, installed and maintained in a safe manner consistent with the speed and type of haulage.

4. Advisory standards 57.9–18 and 57.9–29 are revoked, and standard numbers 57.9–18 and 57.9–29 are reserved as follows:

57.9–18 [Reserved]

* * * * *

57.9–29 [Reserved]

5. Advisory standard 57.9–63, which is applicable to surface and underground, is revised and made mandatory as follows:

57.9–63 *Mandatory.* Ramps and dumping facilities shall—

(a) Be of substantial construction; and

(b) Have suitable width, clearance, and headroom to accommodate the equipment using the facilities.

6. Advisory standard 57.9–70, which is applicable to surface and underground, is revised and made mandatory as follows:

57.9–70 *Mandatory.* A tow bar of substantial construction or other suitable means of control shall be used to tow heavy equipment. A substantial safety chain or wire rope shall be used in conjunction with any primary rigging.

7. New mandatory standard 57.9–74 (formerly advisory standard 57.5–4), which is applicable to surface and underground, is added as follows:

57.9–74 *Mandatory.* Dust shall be suitably controlled at muck piles, material transfer points, crushers, and on haulage roads where hazards to personnel may be created as a result of impaired visibility.

8. Reserved standard numbers 57.9–74 through 57.9–80 are revised as follows:

57.9–75 through 57.9–80 [Reserved]

9. Advisory standards 57.9–81 and 57.9–82 are revoked, and standard numbers 57.9–81 and 57.9–82 are reserved as follows:

57.9–81 and 57.9–82 [Reserved]

10. Advisory standard 57.9–105, which is applicable to underground only, is revised and made mandatory as follows:

57.9–105 *Mandatory.* To prevent rock from flying out when broken material is dumped into an empty chute—

(a) The chute shall be properly guarded prior to filling; or

(b) Sufficient material shall be left in the chute bottom.

11. Advisory standard 57.9–115, which is applicable to underground only, is revised and made mandatory as follows:

57.9–115 *Mandatory.* Man trips shall be covered if there is danger of passengers contacting the trolley wire.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.10 [Amended]

OO. Section 57.10 "Aerial tramways" is amended as follows:

1. Advisory standard 57.10–1, which is applicable to surface only, is revised and made mandatory as follows:

57.10–1 *Mandatory.* Buckets shall not be overloaded, and feed shall be regulated to prevent spillage.

2. Advisory standard 57.10–2, which is applicable to surface only, is revised and made mandatory as follows:

57.10–2 *Mandatory.* Inspection and maintenance of carriers (including loading and unloading mechanisms), ropes and supports, and brakes shall be performed by competent persons according to the recommendations of the manufacturer.

3. Advisory standard 57.10–4, which is applicable to surface only, is revised and made mandatory as follows:

57.10–4 *Mandatory.* Positive-action-type brakes and devices which apply the brakes automatically in the event of a power failure shall be provided on aerial tramways.

4. Advisory standard 57.10–5, which is applicable to surface only, is revised and made mandatory as follows:

57.10–5 *Mandatory.* Track cable connections shall not obstruct the passage of carriage wheels.

5. Advisory standard 57.10–6, which is applicable to surface only, is revised and made mandatory as follows:

57.10–6 *Mandatory.* Towers shall be suitably protected from swaying buckets.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.11 [Amended]

PP. Section 57.11 "Travelways and escapeways" is amended as follows:

1. Advisory standard 57.11–4, which is applicable to surface and underground, is revised and made mandatory as follows:

57.11–4 *Mandatory.* Portable rigid ladders shall be provided with suitable bases and placed securely when used.

2. Advisory standard 57.11–7, which is applicable to surface and underground, is revised and made mandatory as follows:

57.11–7 *Mandatory.* Wooden components of ladders shall not be painted except with a transparent finish.

3. Advisory standard 57.11–8 is revoked, and standard number 57.11–8 is reserved as follows:

57.11–8 [Reserved]

4. Advisory standard 57.11–10, which is applicable to surface and underground, is revised and made mandatory as follows:

57.11–10 *Mandatory.* Vertical clearance above stair steps shall be a minimum of seven (7) feet, or suitable warning signs or similar devices shall be provided to indicate an impaired clearance.

5. Advisory standard 57.11–11, which is applicable to surface and underground, is revised and made mandatory as follows:

57.11–11 *Mandatory.* Persons using ladders shall face the ladders and have both hands free for climbing and descending.

6. Advisory standard 57.11–15 is revoked, and standard number 57.11–15 is reserved as follows:

57.11–15 [Reserved]

7. Advisory standard 57.11–17, which is applicable to surface and underground, is revised and made mandatory as follows:

57.11–17 *Mandatory.* Fixed ladders shall not incline backwards.

8. Advisory standard 57.11–25, which is applicable to surface only, is revised and made mandatory as follows:

57.11–25 *Mandatory.* Fixed ladders, except on mobile equipment, shall be offset and have substantial railed landings at least

every 30 feet unless backguards or equivalent protection, such as safety belts and safety lines, are provided.

9. Advisory standard 57.11–26, which is applicable to surface only, is revised and made mandatory as follows:

57.11–26 *Mandatory.* Fixed ladders 70 degrees to 90 degrees from the horizontal and 30 feet or more in length shall have backguards, cages or equivalent protection, starting at a point not more than seven (7) feet from the bottom of the ladders.

10. Advisory standard 57.11–35 is revoked, and standard number 57.11–35 is reserved as follows:

57.11–35 [Reserved]

11. Advisory standard 57.11–37, which is applicable to underground only, is revised and made mandatory as follows:

57.11–37 *Mandatory.* Ladderways constructed after November 15, 1979 shall have a minimum unobstructed cross-sectional opening of 24 inches by 24 inches measured from the face of the ladder.

12. Advisory standard 57.11–38, which is applicable to underground only, is revised and made mandatory as follows:

57.11–38 *Mandatory.* Before entering a manway where persons may be working or traveling, a warning shall be given by the person entering the manway and acknowledged by any person present in the manway.

13. Advisory standard 57.11–39 is revoked, and standard number 57.11–39 is reserved as follows:

57.11–39 [Reserved]

14. Advisory standard 57.11–40, which is applicable to underground only, is revised and made mandatory as follows:

57.11–40 *Mandatory.* Travelways steeper than 35 degrees from the horizontal shall be provided with ladders or stairways.

15. Advisory standard 57.11–41, which is applicable to underground only, is revised and made mandatory as follows:

57.11–41 *Mandatory.* Fixed ladders with an inclination of more than 70 degrees from the horizontal shall be offset with substantial landings at least every 30 feet or have landing gates at least every 30 feet.

16. Advisory standard 57.11–56, which is applicable to underground only, is revised and made mandatory as follows:

57.11–56 *Mandatory.* The procedure for inspection, testing and maintenance required by standard 57.19–120 shall be utilized at least every 30 days for hoists designated as emergency hoists in any evacuation plan.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.12 [Amended]

QQ. Section 57.12 "Electricity" is amended as follows:

1. Advisory standard 57.12–4, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–4 *Mandatory.* Electrical conductors shall be of a sufficient size and current-carrying capacity to ensure that a rise in temperature resulting from normal operations will not damage the insulating materials. Electrical conductors exposed to mechanical damage shall be protected.

2. Advisory standard 57.12–19, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–19 *Mandatory.* Where access is necessary, suitable clearance shall be provided at stationary electrical equipment or switchgear.

3. Advisory standard 57.12–22, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–22 *Mandatory.* Areas containing major electrical installations shall be entered only by authorized persons.

4. Advisory standards 57.12–24, 57.12–29, and 57.12–31 are revoked, and standard numbers 57.12–24, 57.12–29 and 57.12–31 are reserved as follows:

57.12–24 [Reserved]

* * * * *

57.12–29 [Reserved]

* * * * *

57.12–31 [Reserved]

5. Advisory standard 57.12–35, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–35 *Mandatory.* Lamp sockets shall be of a weatherproof type where they are exposed to weather or wet conditions that may interfere with illumination or create a shock hazard.

6. Advisory standard 57.12–38, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–38 *Mandatory.* Trailing cables shall be attached to machines in a suitable manner to protect the cable from damage and to prevent strain on the electrical connections.

7. Advisory standard 57.12–39, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–39 *Mandatory.* Surplus trailing cables to shovels, cranes and similar equipment shall be—

(a) Stored in cable boats;

(b) Stored on reels mounted on the equipment; or

(c) Otherwise protected from mechanical damage.

8. Advisory standards 57.12–44 and 57.12–49 are revoked, standards 57.12–44 and 57.12–49 are reserved, and reserved standard number 57.12–43 is revised as follows:

57.12–43 and 57.12–44 [Reserved]

* * * * *

57.12–49 [Reserved]

9. Advisory standard 57.12–50, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–50 *Mandatory.* Trolley wires shall be installed at least seven (7) feet above rails where height permits, and aligned and supported to suitably control sway and sag.

10. Advisory standards 57.12–51 and 57.12–52 are revoked, and standard numbers 57.12–51 and 57.12–52 are reserved as follows:

57.12–51 and 57.12–52 [Reserved]

11. Advisory standard 57.12–53, which is applicable to surface and underground, is revised and made mandatory as follows:

57.12–53 *Mandatory.* Ground wires for lighting circuits powered from trolley wires shall be connected securely to the ground-return circuit.

12. Advisory standard 57.12–54 is revoked, standard number 57.12–54 is reserved, and reserved standard numbers 57.12–55 through 57.12–64 are revised as follows:

57.12–54 through 57.12–64 [Reserved]

13. Advisory standard 57.12–86, which is applicable to underground only, is revised and made mandatory as follows:

57.12–86 *Mandatory.* Trolley and trolley feeder wire shall be installed opposite the clearance side of haulageways. However, this standard does not apply where physical limitations would prevent the safe installation or use of such trolley and trolley feeder wire.

14. Advisory standard 57.12–87 is revoked, and standard number 57.12–87 is reserved as follows:

57.12–87 [Reserved]

15. Advisory standard 57.12–88, which is applicable to underground only, is revised and made mandatory as follows:

57.12–88 *Mandatory.* No splice, except a vulcanized splice or its equivalent, shall be made in a trailing cable within 25 feet of the machine unless the machine is equipped with a cable reel or other power feed cable payout-retrieval system. However, a temporary splice may be made to move the equipment for repair.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.13 [Amended]

RR. Section 57.13 "Compressed air and boilers" is amended as follows:

1. Advisory standard 57.13–10, which is applicable to surface and underground, is revised and made mandatory as follows:

57.13–10 *Mandatory.* (a) Reciprocating-type air compressors rated over 10 horsepower shall be equipped with automatic temperature-actuated shut off mechanisms which shall be set or adjusted to the compressor when the normal operating temperature is exceeded by more than 25 percent.

(b) However, this standard does not apply to reciprocating-type air compressors rated over 10 horsepower if equipped with fusible plugs that were installed in the compressor discharge lines before November 15, 1979 and designed to melt at temperatures at least 50 degrees below the flash point of the compressors' lubricating oil.

2. Advisory standard 57.13–11, which is applicable to surface and underground, is revised and made mandatory as follows:

57.13–11 *Mandatory.* Air receiver tanks shall be equipped with one or more automatic pressure-relief valves. The total relieving capacity of the relief valves shall prevent pressure from exceeding the maximum allowable working pressure in a receiver tank by not more than 10 percent. Air receiver tanks also shall be equipped with indicating pressure gages which accurately measure the pressure within the air receiver tanks.

3. Advisory standard 57.13–12, which is applicable to surface and underground, is revised and made mandatory as follows:

57.13–12 *Mandatory.* Compressor air intakes shall be installed to insure that only clean, uncontaminated air enters the compressors.

4. Advisory standards 57.13–13 and 57.13–14 are revoked, and standard numbers 57.13–13 and 57.13–14 are reserved as follows:

57.13–13 and 57.13–14 [Reserved]

5. Advisory standard 57.13–15, which is applicable to surface and underground, is revised and made mandatory as follows:

57.13–15 *Mandatory.* (a) Compressed-air receivers and other unfired pressure vessels shall be inspected by inspectors holding a valid National Board Commission and in accordance with the applicable chapters of the National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979. This code is incorporated by reference and made a part of this standard, may be examined at any Metal and Nonmetal Mine Safety and Health Distict Office of the Mine Safety and Health Administration, and may be obtained from the publisher, the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

(b) Records of inspections shall be kept in accordance with requirements of the National Board Inspection Code, and the records shall be made available to the Secretary or his authorized representative.

6. Advisory standard 57.13–16 is revoked, and standard number 57.13–16 is reserved as follows:

57.13–16 [Reserved]

7. Advisory standard 57.13–17, which is applicable to surface and underground, is revised and made mandatory as follows:

57.13–17 *Mandatory.* Compressor discharge pipes where carbon build-up may occur shall be cleaned periodically as recommended by the manufacturer, but no less frequently than once every two (2) years.

8. Advisory standard 57.13–18 is revoked, and standard number 57.13–18 is reserved as follows:

57.13–18 [Reserved]

9. Advisory standard 57.13–30, which is applicable to surface and underground, is revised and made mandatory as follows:

57.13–30 *Mandatory.* (a) Fired pressure vessels (boilers) shall be equipped with water level gages, pressure gages, automatic pressure-relief valves, blowdown piping, and other safety devices approved by the American Society of Mechanical Engineers to protect against hazards from overpressure, flameouts, fuel interruptions and low water level, all as required by the appropriate sections, chapters and appendices listed in paragraph (b)(1) and (2) below.

(b) These gages, devices and piping shall be designed, installed, operated, maintained, repaired, altered, inspected, and tested by inspectors holding a valid National Board Commission and in accordance with the following listed sections, chapters and appendices:

(1) The ASME Boiler and Pressure Vessel Code, 1977, published by the American Society of Mechanical Engineers.

Section and Title

I Power Boilers.
II Material Specifications—Part A—Ferrous.
II Material Specifications—Part B—Nonferrous.
II Material Specifications—Part C—Welding Rods, Electrodes, and Filler Metals.
IV Heating Boilers.
V Nondestructive Examination.
VI Recommended Rules for Care and Operation of Heating Boilers.
VII Recommended Rules for Care of Power Boilers.

(2) The National Board Inspection Code, a Manual for Boiler and Pressure Vessel Inspectors, 1979. Published by the National Board of Boiler and Pressure Vessel Inspectors.

Chapter and Title

I Glossary of Terms.
II Inspection of Boilers and Pressure Vessels.
III Repairs and Alterations to Boiler and Pressure Vessels by Welding.
IV Shop Inspection of Boilers and Pressure Vessels.
V Inservice Inspection of Pressure Vessels by Authorized Owner-User Inspection Agencies.

Appendix and Title

A Safety and Safety Relief Valves.
B Non-ASME Code Boilers and Pressure Vessels.
C Storage of Mild Steel Covered Arc Welding Electrodes.
D–R National board "R" (Repair) Symbol Stamp.
D–VR National Board "V" (Repair of Safety and Safety Relief Valve) Symbol Stamp.
D–VR1 Certificate of Authorization for Repair Symbol Stamp for Safety and Safety Relief Valves.
D–VR2 Outline of Basic Elements of Written Quality Control System for Repairers of ASME Safety and Safety Relief Valves.
D–VR3 Nameplate Stamping for "VR".
E Owner-user Inspection Agencies.
F Inspection Forms.

(c) Records of inspections and repairs shall be kept in accordance with the requirements of the ASME Boiler and Pressure Vessel Code and the National Board Inspection Code. The records shall be made available to the Secretary or his authorized representative.

(d) Sections of the ASME Boiler and Pressure Vessel Code, 1977, listed in paragraph (b)(1) above, and chapters and appendices of the National Board Inspection Code, 1979, listed in paragraph (b)(2) above, are incorporated by reference and made a part of this standard. These publications may be obtained from the publishers, the American Society of Mechanical Engineers, 345 East Forty-seventh Street, New York, N.Y. 10017, and the National Board of Boiler and Pressure Vesel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229. The publication may be examined at any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration.

10. Advisory standards 57.13–31, 57.13–32, 57.13–33, and 57.13–34 are revoked, and standard numbers 57.13–31, 57.13–32, 57.13–33, and 57.13–34 are reserved as follows:

57.13–31 through 57.13–34 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.14 [Amended]

SS. Section 57.14 "Use of equipment" is amended as follows:

1. Advisory standard 57.14–3, which is applicable to surface and underground, is revised and made mandatory as follows:

57.14–3 *Mandatory.* Guards at conveyor-drive, conveyor-head, and conveyor-tail

pulleys shall extend a distance sufficient to prevent a person from accidentally reaching behind the guard and becoming caught between the belt and the pulley.

2. Advisory standards 57.14–4 and 57.14–5 are revoked, and standard numbers 57.14–4 and 57.14–5 are reserved as follows:

57.14–4 and 57.14–5 [Reserved]

3. Advisory standard 57.14–7, which is applicable to surface and underground, is revised and made mandatory as follows:

57.14–7 *Mandatory.* Guards shall be of substantial construction and properly maintained.

4. Advisory standard 57.14–11, which is applicable to surface and underground, is revised and made mandatory as follows:

57.14–11 *Mandatory.* Guards, shields, or other suitable protection shall be provided in areas where flying or falling materials present a hazard to personnel.

5. Advisory standard 57.14–25 is revoked, and standard number 57.14–25 is reserved as follows:

57.14–25 [Reserved]

6. Advisory standard 57.14–27, which is applicable to surface and underground, is revised and made mandatory as follows:

57.14–27 *Mandatory.* Operation of machinery or equipment shall be assigned only to competent persons.

7. Advisory standard 57.14–28 is revoked, and standard number 57.14–28 is reserved as follows:

57.14–28 [Reserved]

8. Advisory standard 57.14–36, which is applicable to surface and underground, is revised and made mandatory as follows:

57.14–36 *Mandatory.* Tools and equipment shall not be used beyond the design capacity intended by the manufacturer, where such use may create a hazard to personnel.

9. Advisory standared 57.14–55, which is applicable to underground only, is revised and made mandatory as follows:

57.14–55 *Mandatory.* Welding operations shall be shielded and well-ventilated.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.15 [Amended]

TT. Section 57.15 "Personal protection" is amended as follows:

1. Advisory standards 57.15–8, 57.15–9, 57.15–10, 57.15–11, and 57.15–13 are revoked, standard numbers 57.15–8, 57.15–9, 57.15–10, 57.15–11, 57.15–12 (Revoked July 1, 1974, 39 FR 24320), and 57.15–13 are reserved, and reserved standard numbers 57.15–14 through 57.15–19 are revised as follows:

57.15–8 through 57.15–19 [Reserved]

(301 (b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C 961 (b)(2)).)

§ 57.16 [Amended]

UU. Section 57.16 "Materials storage and handling" is amended as follows:

1. Advisory standard 57.16–1, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–1 *Mandatory.* Supplies shall not be stacked or stored in a manner which creates tripping or fall-of-material hazards.

2. Advisory standard 57.16–2, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–2 *Mandatory.* (a) Bins, hoppers, silos, tanks and surge piles, where loose unconsolidated materials are stored, handled or transferred shall be—

(1) Equipped with mechanical devices or other effective means of handling materials so that during normal operations persons are not required to enter or work where they are exposed to entrapment by the caving or sliding of materials, and

(2) Equipped with supply and discharge operating controls. The controls shall be located so that spills or overruns will not endanger persons.

(b) Where persons are required to move around or over any facility listed in this standard, suitable walkways or passageways shall be provided.

(c) Where persons are required to enter any facility listed in this standard for maintenance or inspection purposes, ladders, platforms, or staging shall be provided. No person shall enter the facility until the supply and discharge of materials have ceased and the supply and discharge equipment is locked out. Persons entering the facility shall wear a safety belt or harness equipped with a lifeline suitably fastened. A second person, similarly equipped, shall be stationed near where the lifeline is fastened and shall constantly adjust it or keep it tight as needed, with minimum slack.

3. Advisory standard 57.16–7, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–7 *Mandatory.* (a) Taglines shall be attached to loads that may require steadying or guidance while suspended.

(b) Hitches and slings used to hoist materials shall be suitable for the particular material handled.

4. Advisory standard 57.16–8 is revoked, and standard number 57.16–8 is reserved as follows:

57.16–8 [Reserved]

5. Advisory standard 57.16–10, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–10 *Mandatory.* To protect personnel, material shall not be dropped from an overhead elevation until the drop area is first cleared of personnel and the area is then either guarded or a suitable warning is given.

6. Advisory standard 57.16–12, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–12 *Mandatory.* Chemical substances, including concentrated acids and alkalies, shall be stored to prevent inadvertent contact with each other or with other substances, where such contact could cause a violent reaction or the liberation of harmful fumes or gases.

7. Advisory standard 57.16–13, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–13 *Mandatory.* Suitable warning shall be given before molten metal is poured and before a container of molten metal is moved.

8. Advisory standard 57.16–16, which is applicable to surface and underground, is revised and made mandatory as follows:

57.16–16 *Mandatory.* Fork and other similar types of lift trucks shall be operated with the—

(a) Upright tilted back to steady and secure the load;

(b) Load in the upgrade position when ascending or descending grades in excess of 10 percent;

(c) Load not raised or lowered enroute except for minor adjustments; and

(d) Load-engaging device downgrade when traveling unloaded on all grades.

9. Advisory standard 57.16–35, which is applicable to underground only, is revised, renumbered, and made mandatory and applicable to surface and underground as follows:

57.16–17 *Mandatory.* Where the stretching or contraction of a hoist rope could create a hazard, chairs or other suitable blocking shall be used to support conveyances at shaft landings before heavy equipment or material is loaded or unloaded.

10. Standard number 57.16–35 is reserved as follows:

57.16–35 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).

§ 57.18 [Amended]

VV. Section 57.18 "Safety programs" is amended as follows:

1. Advisory standard 57.18–1 is revoked, and standard number 57.18–1 is reserved as follows:

57.18–1 [Reserved]

2. Advisory standard 57.18–2, which is applicable to surface and underground, is revised and made mandatory as follows:

57.18–2 *Mandatory.* (a) A competent person designated by the operator shall examine each working place at least once each shift for conditions which may adversely affect safety or health. The operator shall promptly initiate appropriate action to correct such conditions.

(b) A record that such examinations were conducted shall be kept by the operator for a period of one (1) year, and shall be made available for review by the Secretary or his authorized representative.

(c) In addition, conditions that may present an imminent danger which are noted by the person conducting the examination shall be brought to the immediate attention of the operator who shall withdraw all persons from the area affected (except persons referred to in section 104(c) of the Federal Mine Safety and Health Act of 1977) until the danger is abated.

3. Advisory standards 57.18–3, 57.18–4, 57.18–5, 57.18–7, and 57.18–8 are revoked, and standard numbers 57.18–3, 57.18–4, 57.18–5, 57.18–7, and 57.18–8 are reserved as follows:

57.18–3 through 57.18–5 [Reserved]

* * * * *

57.18–7 and 57.18–8 [Reserved]

4. Advisory standard 57.18–9, which is applicable to surface and underground, is revised and made mandatory as follows:

57.18–9 *Mandatory.* When persons are working at the mine, a competent person designated by the mine operator shall be in attendance to take charge in case of an emergency.

5. Advisory standard 57.18–11 is revoked, and standard number 57.18–11 is reserved as follows:

57.18–11 [Reserved]

6. Advisory standard 57.18–13, which is applicable to surface and underground, is revised and made mandatory as follows:

57.18–13 *Mandatory.* A suitable communication system shall be provided at the mine to obtain assistance in the event of an emergency.

7. Advisory standard 57.18–26 is revoked, and standard number 57.18–26 is reserved as follows:

57.18–26 [Reserved]

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.19 [Amended]

WW. Section 57.19 "Man hoisting" is amended as follows:

1. The paragraph immediately following the heading "§ 57.19 Man hoisting" is revised as follows:

The hoisting standards in this section apply to those hoists and appurtenances used for hoisting persons. However, where persons may be endangered by hoists and appurtenances used solely for handling ore, rock, and materials, the appropriate standards should be applied.

Emergency hoisting facilities should conform to the extent possible to safety requirements for other hoists, and should be adequate to remove the persons from the mine with a minimum of delay.

2. Advisory standard 57.19–12 is revised and made mandatory as follows:

57.19–12 *Mandatory.* Where grooved drums are used, the grooves shall be of suitable size and pitch for the ropes used.

3. Advisory standards 57.19–20 and 57.19–25 are revoked, and standard numbers 57.19–20 and 57.19–25 are reserved as follows:

57.19–20 [Reserved]

* * * * *

57.19–25 [Reserved]

4. Advisory standard 57.19–35 is revised and made mandatory as follows:

57.19–35 *Mandatory.* All headframes shall be constructed with suitable design considerations to allow for all dead loads, live loads, and wind loads.

5. Advisory standard 57.19–36 is revised and made mandatory as follows:

57.19–36 *Mandatory.* Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyance.

6. Advisory standard 57.19–37 is revised and made mandatory as follows:

57.19–37 *Mandatory.* Fleet angles on hoists installed after November 15, 1979 shall not be greater than one and one-half degrees for smooth drums or two degrees for grooved drums.

7. Advisory standard 57.19–39 is revised and made mandatory as follows:

57.19–39 *Mandatory.* All personnel hoists, except emergency escape hoists and hoists with rope speeds of 200 feet per minute or less, installed after November 15, 1979 shall have drum and sheave tread diameters—

(1) Not less than 60 times the hoist rope diameter for slope or inclined shaft applications;

(2) Not less than 80 times the hoist rope diameter if the hoist ropes are one inch in diameter or greater, or not less than 60 times the hoist rope diameter if the hoist ropes are less than one inch in diameter for vertical shaft applications; or

(3) Not less than 100 times the hoist rope diameter for locked coil ropes.

8. Advisory standard 57.19–67 is revised and made mandatory as follows:

57.19–67 *Mandatory.* During shift changes, an authorized person shall be in charge of each trip in which persons are hoisted.

9. Advisory standard 57.19–72 is revised and made mandatory as follows:

57.19–72 *Mandatory.* When combinations of cages and skips are used in the same compartment, the cages shall be enclosed to protect personnel from flying material and the hoist speed reduced to man-speed as defined in standard 57.19–61, but not to exceed 1,000 feet per minute. Muck shall not be hoisted with personnel during shift changes.

10. Advisory standard 57.19–74 is revised and made mandatory as follows:

57.19–74 *Mandatory.* Persons shall not ride the bail, rim, bonnet, or crosshead of any shaft conveyance except when necessary for inspection and maintenance, and then only when suitable protection for persons is provided.

11. Advisory standard 57.19–81 is revised and made mandatory as follows:

57.19–81 *Mandatory.* When conveyances controlled by a hoist operator are not in use, they shall be released and the conveyances shall be raised or lowered a suitable distance to prevent persons from boarding or loading the conveyances.

12. Advisory standard 57.19–91 is revised and made mandatory as follows:

57.19–91 *Mandatory.* Hoist operators shall accept hoisting instructions only by the regular signaling system unless it is out of order. In such an event, and during other emergencies, the hoist operator shall accept instructions to direct movement of the conveyances only from authorized persons.

13. Advisory standard 57.19–93 is revised and made mandatory as follows:

57.19–93 *Mandatory.* A standard code of hoisting signals shall be adopted and used at each mine. The movement of a shaft conveyance on a "one bell" signal is prohibited.

14. Advisory standard 57.19–104 is revised and made mandatory as follows:

57.19–104 *Mandatory.* Suitable clearance at shaft stations shall be provided to allow safe movement of persons, equipment and materials.

15. Advisory standard 57.19–124 is revised and made mandatory as follows:

57.19–124 *Mandatory.* Hoist ropes other than those on friction hoists shall be cut off at least six (6) feet above the highest connection to the conveyance at time intervals not to exceed one (1) year unless a shorter time is required by standard 57.19–126, or by conditions of use. The portion of the rope that is cut off shall be examined and inspected by a competent person for damage, corrosion, wear and fatique.

16. Advisory standard 57.19–125 is revised and made mandatory as follows:

57.19–125 *Mandatory.* Hoist ropes wound in multiple layers shall have a length cut off at the drum end at least three (3) times during the anticipated life of the rope and whenever

necessary as required by standard 57.19–126 to distribute the wear at change-of-layer and crossover points. The length of rope cut off shall not be a whole number multiple of the circumference of the drum.

17. Advisory standard 57.19–126 is revised and made mandatory as follows:

57.19–126 *Mandatory.* Hoist ropes shall be examined over the entire active length at least every month to evaluate wear and possible damage. When such examinations or other inspections reveal that the rope is worn, and at least every six (6) months, caliper measurements or nondestructive tests shall be made at the following locations:

(a) Wherever wear is evident;

(b) Immediately above the socket or clip and above the safety connection;

(c) Where the rope rests on the sheaves;

(d) Where the ropes leave the drums when the conveyances are at the regular stopping point;

(e) Where a layer of rope begins to overlap another layer on the drum; and

(f) At 100 foot intervals (measurements shall be made midway between the last previously calipered points).

18. Advisory standard 57.19–127 is revoked, and standard number 57.19–127 is reserved as follows:

57.19–127 [Reserved]

19. Advisory standard 57.19–130 is revised and made mandatory as follows:

57.19–130 *Mandatory.* Before hoisting persons and to assure that the hoisting compartments are clear of obstructions, empty hoist conveyances shall be operated at least one round trip after—

(a) Any hoist or shaft repairs or related equipment repairs that might restrict or obstruct conveyance clearance;

(b) Any oversize or overweight material or equipment trips that might restrict or obstruct conveyance clearance;

(c) Blasting in or near the shaft that might restrict or obstruct conveyance clearance; or

(d) Remaining idle for one shift or longer

20. Advisory standard 57.19–131 is revised and made mandatory as follows:

57.19–131 *Mandatory.* Hoist conveyance connections shall be inspected at least once during any 24-hour period that the conveyance is used for hoisting persons.

21. Advisory standard 57.19–132 is revised and made mandatory as follows:

57.19–132 *Mandatory.* (a) A performance drop test of hoist conveyance safety catches shall be made at the time of installation, or prior to installation, in a mockup of the actual installation. The test shall be certified to in writing by the manufacturer or by a registered professional engineer performing the test.

(b) After installation and before use, and at the beginning of any seven (7) day period during which the conveyance is to be used, the conveyance shall be suitably rested and the hoist rope slackened to test for the unrestricted functioning of the safety catches and their activating mechanisms.

(c) The safety catches shall be inspected by a competent person at the beginning of any 24-hour period that the conveyance is to be used.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.20 [Amended]

XX. Section 57.20 "Miscellaneous" is amended as follows:

1. Advisory standards 57.20–4, 57.20–6, and 57.20–7, are revoked, and standard numbers 57.20–4, 57.20–6, and 57 20–7 are reserved as follows:

57.20–4 [Reserved]

* * * * *

57.20–6 and 57.20–7 [Reserved]

2. Advisory standard 57.20–32, which is applicable to surface and underground, is revised and made mandatory as follows:

57.20–32 *Mandatory.* Telephones or other two-way communication equipment with instructions for their use shall be provided for communication from underground operations to the surface.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2)).)

§ 57.21 [Amended]

YY. Section 57.21 "Gassy Mines" is amended as follows:

1. Advisory standard 57.21–37 is revoked, and standard number 57.21–37 is reserved as follows:

57.21–37 [Reserved]

2. Advisory standard 57.21–49 is revised and made mandatory as follows:

57.21–49 *Mandatory.* Brattice cloth shall be of flame-resistant material.

3. Advisory standard 57.21–51 is revised and made mandatory as follows:

57.21–51 *Mandatory.* Crosscuts shall be provided where practicable at or within eighteen (18) feet of the face of drifts, entries, and rooms before the workings are abandoned in any unsealed area of the mine. When crosscuts are not practicable, line brattice or other suitable means of ventilating shall be provided to the drifts, entries, or rooms.

4. Advisory standard 57.21–65 is revised and made mandatory as follows:

57.21–65 *Mandatory.* At intervals not greater than seven (7) days, the mine foreman (or other competent person designated by the mine foreman) shall examine for hazardous conditions and for compliance with health and safety standards, and shall test for methane and carbon monoxide. The tests shall be made with approved devices at the following locations:

(a) In the return of each split where it enters the main return;

(b) Adjacent to retreat areas, if accessible;

(c) At seals;

(d) In the main return;

(e) In at least one entry of each intake and return airway;

(f) In idle workings; and

(g) In unsealed abandoned workings, as conditions permit.

(301(b)(2), Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961(b)(2))

Parts 55, 56 and 57 [Amended]

ZZ. The authority in Parts 55, 56 and 57 is revised to read as follows:

Authority: Secs. 301(a), 301(b)(2), 301(c)(3) and 302(a) of the Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95–164, 91 Stat. 1317–1319 (30 USC 961(a), (b)(2), (c)(3) (Supp. I, 1977)), and 29 USC 557a (Supp. I, 1977); sec. 508 of the Federal Mine Safety and Health Act of 1977, Pub. L. 91–173 as amended by Pub. L. 95–164, 83 Stat. 803 (30 USC 957 (1976 ed.)); sec. 6 of the Federal Metal and Nonmetallic Mine Safety Act (repealed 1977), Pub. L. 89–577, 80 Stat. 774 (30 USC 725 (1976 ed.)), (repealed sec. 306(a), Pub. L. 95–164, 91 Stat. 1322, but see sec. 301(b)(1), Pub. L. 95–164, 91 Stat. 1317 (30 USC 961(b)(1) (Supp. I, 1977)).)

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30 CFR Parts 55, 56 and 57

Metal and Nonmetal Mine Safety; New and Revised Definitions and Safety and Health Standards For Explosives

AGENCY: Mine Safety and Health Administration, Department of Labor

ACTION: Final rule

SUMMARY: This final rule amends 30 CFR Parts 55, 56 and 57 by adding new definitions and mandatory standards, as well as revising certain existing mandatory standards and definitions. It also revises certain advisory standards and make them mandatory. The rule includes mandatory standards relating to the transportation, storage and use of explosives for metal and nonmetal mines and mills. New definitions have been added for the terms delay connector, magazine, non-electric delay blasting cap, and water gel or slurry (as applied to blasting).

In addition, definitions have been revised for the terms blasting agent, blasting cap, blasting circuit, booster, capped fuse, detonator, detonating cord, electric blasting cap, explosive, primer, and safety fuse. This final rule will afford miners additional protection from accidents and injuries which are related to the use of explosives in metal and nonmetal mines and mills.

EFFECTIVE DATE: These definitions and standards shall be effective November 15, 1979.

FOR FURTHER INFORMATION CONTACT: Frank Delimba, Chief, Division of Safety, Metal and Nonmetal Mine Safety

and Health, Mine Safety and Health Administration, Ballston Tower No. 3, Room 717, 4015 Wilson Boulevard, Arlington, Virginia 22203, (703) 235–8646.

SUPPLEMENTARY INFORMATION:

I. Background

When the Federal Mine Safety and Health Admendments Act of 1977 [the "Amendments Act"], Pub. L. 95–164, 91 Stat. 1290 *et seq.*, became effective on March 9, 1978, the Federal Metal and Nonmetallic Mine Safety Act of 1966 [the "Metal Act"], Pub. L. 89–577, 80 Stat. 772, 30 USC 721 *et seq.* (1976 ed.), was repealed. However, certain formal rulemaking proceedings relating to health and safety standards were pending before the Secretary of Interior and the Mining Enforcement and Safety Administration (MESA) at that time. Pursuant to section 301(c)(3) of the Amendments Act, 191 Stat. 1318, 30 USC 961(c)(3) (Supp. I, 1977), these rulemaking proceedings were transferred to, and continued before, the Secretary of Labor and the Mine Safety and Health Administration (MSHA). This final decision and rule is the result of a formal rulemaking proceeding initiated by the Secretary of Interior and MESA under section 6 of the Metal Act.

On September 25, 1975, a notice of proposed rulemaking setting forth proposed amendments to Parts 55, 56 and 57 of Title 30, Code of Federal Regulations, was published in the **Federal Register** [40 FR 44272]. The original comment period was extended from November 6, 1975 to December 5, 1975 [40 FR 51202] to encourage full public participation. A number of interested persons and organizations filed written comments, suggestions and objections with respect to the proposed safety standards and definitions and several objections contained specific requests for public hearings. The objections and the proposed standards, several of which were revised to reflect public comments, were published in the **Federal Register** on April 16, 1976 [41 FR 16163]. In the same publication, the Secretary of the Interior, under the authority of section 6 (d)(1) of the Metal Act, instructed that a public hearing be held before an Administrative Law Judge, who would be empowered to receive evidence relevant and material to the issues raised by the objections set forth in the **Federal Register.** The Administrative Law Judge was further authorized to consider all objections, and based upon the record, submit a recommended decision to the Secretary who would review the recommendations and issue a final decision. The formal public hearing, subject to the provisions of the Administrative Procedure Act, 5 USC 553–557 (1976 Ed.), was held in Salt Lake City, Utah from June 28, 1976 through July 2, 1976 and in Denver, Colorado on July 12 and 13, 1976.

During the public hearing phase of the rulemaking, many of the proposed standards were stipulated either without change or with modification by the unanimous consent of the participating parties. When the major participating parties reached agreement on the wording of certain standards, the agreed language was read before the presiding Administrative Law Judge, Harvey C. Sweitzer. If no objection was raised by any party, the stipulated provision was made part of the record without further testimony. There was general agreement or a stipulation of the following definitions and standards: blasting cap, blasting circuit, capped fuse, detonator, detonating cord, electric blasting cap, explosive, magazine, water gel or slurry (as applied to blasting), 55/56/57.6–250 (smoking and open flames, formerly 55/56/57.6–6),[1] 55/56/57.6–7 (storage of explosive materials), 55/56/57.6–11 (closed containers), 55/56/57.6–48 (transportation of explosive materials), 55/56/57.6–92 (damaged explosives), 55/56/57.6–106 (undetonated explosive materials), 55/56/57.6–118 (safety fuse timing), 55/56/57.6–121 (electrical testing of blasting circuits), 55/56/57.6–126 (de-energizing electric power distribution circuits, formerly 55/56/57.6–170), 55/56/57.6–138 (premature ignition, formerly 55/56/57.6–169), 55/56/57.6–139 (re-entering blast areas, formerly 55/56/57.6–176), and 55/56/57.6–140 (extraneous electricity, formerly 55/56/57.6–180).

However, the proposed definitions for the terms blasting agent, booster, primer, and charged hole, and proposed standards 55/56/57.6–97 (assembly of primers), 55/56/57.6–98 (connection of detonators), and 55/56/57.6–101 (tamping primers) were contested during the hearing.

At the conclusion of the hearing, the date for filing post-hearing arguments was fixed as November 16, 1976, and reply arguments by December 16, 1976. After consideration of the record, the Administrative Law Judge submitted his recommended decision to the Secretary of Interior on November 16, 1977.

Those who participated in the public hearing were then given an opportunity to file exceptions to the recommended decision on or before March 24, 1978. This date was later extended to April 14, 1978.

Eight exceptions to the recommended decision were received by the agency.

In this rule, the Secretary adopts the recommended decision of Administrative Law Judge Sweitzer dated November 16, 1977 as his final decision [2], except for the definitions for blasting agent, explosive, and primer which have been adopted with modifications. MSHA is also withdrawing for further study the proposed definitions for charged hole based on the recommendation of the Administrative Law Judge, and the "Table of Recommended Separation Distance of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents". In adopting the recommended decision of Judge Sweitzer, MSHA has made certain editorial changes to improve clarity or update incorporated references. Copies

[1] Standards uniformly applicable to 30 CFR Parts 55, 56, 57 are referred to in this document as 55/56/57. Standards applicable to Open Pit Mines are published in Part 55. Standards applicable to Sand, Gravel and Crushed Stone Operations are published in Part 56. Standards applicable to Underground Mines (including their surface operations) are published in Part 57.

[2] The Amendments Act was enacted on November 9, 1977, prior to the issuance of the recommended decision by the Administrative Law Judge. Although section 301(c)(3) of the Amendments Act authorized the Secretary of Labor to continue rulemakings begun by the Secretary of Interior, section 301(b)(2) of the Amendments Act also required the Secretary of Labor to establish within 60 days from enactment an advisory committee to: (1) review all existing safety and health standards promulgated as advisory under the Metal Act; and (2) recommend to the Secretary which of those standards should be upgraded or modifed as new mandatory standards. In executing this responsibility, the Secretary on January 5, 1978, appointed the membership of the "Advisory Committee to Review Advisory Metal and Nonmetallic Mine Safety Standards" (the Advisory Committee). Among the advisory standards considered by the Advisory Committee were certain of those standards which were also pending before the Administrative Law Judge in these proceedings: 55/56/57.6–7 (storage of explosive materials), 55/56/57.6–48 (transportation of explosive materials), 55/56/57.6–98 (connection of detonators), 55/56/57.6–106 (undetonated explosive materials), 55/56/57.6–118 (safety fuse timing), 55/56/57.6–121 (electrical testing of blasting circuits), 55/56/57.6–138 (premature ignition), 55/56/57.6–139 (re-entering blast areas), and 55/56/57.6–140 (extraneous electricity). After extensive deliberations involving public hearings and written comment, the Advisory Committee submitted its recommendations to the Secretary on July 5, 1978. The recommendations of the Advisory Committee were virtually identical to the findings of the Administrative Law Judge.

The recommendations of the Advisory Committee were then published as a proposed rule by MSHA on September 12, 1978 (43 FR 40766). Comments on this proposal, including those relating to advisory standards considered by the Administrative Law Judge, were submitted to MSHA by interested parties. While the deliberations of the Advisory Committee and the related public participation were not a formal part of the rulemaking proceedings before the Administrative Law Judge, the agency did take notice of both the substantive similarity of the Advisory Committee's recommendations and the absence of any issues of significane or other information which would have caused a modification of any standard being adopted here as a final rule.

of the Administrative Law Judge's recommended decision are available to the public and may be obtained by contacting the Office of Standards, Regulations and Variances, Department of Labor, Room 631, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, VA 22203.

In addition, other definitions and standards relating to explosives which were proposed at the same time as those covered by the recommended decision of the Administrative Law Judge are also promulgated here as final rules. No consideration by the Administrative Law Judge was necessary for these standards because either no hearing had been requested, or they had been recommended by the Federal Metal and Nonmetal Mine Safety Advisory Committee and therefore were not subject to public hearing under the Metal Act. Rather than promulgate these proposals as final rules on an earlier date, the Secretary of the Interior elected to delay issuance until a final decision had been made on the related proposals which were subject to hearing and considered by the Administrative Law Judge. The following definitions and standards are now promulgated by the Secretary of Labor as final rules in this document: definitions of delay connector; nonelectric delay blasting cap; safety fuse; and standards 55/56/57.6–109 (damaged safety fuse, igniter cord, and detonating cord); 55/56/57.6–132 (delay connectors); and 55/56/57.6–115 (detonating cord connections to trucklines, formerly 55/56/57.6–166).

II. Discussion and Summary of the Final Rule

A. Definitions [55.2, 56.2, 57.2]

Blasting agent. The Administrative Law Judge's recommended definition for blasting agent is revised. The proposed and recommended definitions classified blasting agents as explosive materials not classified as an explosive by the Department of Transportation (DOT) and which cannot be detonated by a number 8 detonator when unconfined. The final rule continues the concept of reliance on the DOT classification system by specifically incorporating by reference [3] DOT's definition for blasting agent, 49 CFR § 173.114(a), as published in the Federal Register on May 31, 1979 [44 FR 31182].[4]

The DOT definition sets out six tests for the identification of blasting agents. In general, materials must react in accordance with the limits set by all of the tests, which deal with blasting cap sensitivity, differential thermal analysis, thermal stability, electrostatic sensitivity, impact sensitivity and fire. The reference in the MESA proposal to a number 8 detonator is no longer necessary since the DOT definition contains a similar test.

Under the DOT's definition which has been incorporated as MSHA's final rule, a material containing no ingredients other than prilled ammonium nitrate with fuel oil need only pass the blasting cap sensitivity test. Any material offered for transportation classed as a blasting agent under this exception must be described as "ammonium nitrate—fuel oil mixture". The DOT has set out tests to positively identify blasting agents and material which must be tested in its final form as mixed for shipment. If the final product conforms to the requirements of the six DOT tests, it is classified as a blasting agent even though an individual component might otherwise have been considered as an explosive. This addresses the concern of some commenters that the proposed definition of blasting agent might have caused certain non-cap sensitive material to be classified as an explosive merely because the material contained an ingredient classified as an explosive by DOT.

Some commenters noted that the recommended definition was in conflict with the definition enacted by Congress in the Organized Crime Control Act of 1970, 18 USC 841(e) (1976 Ed.), and also appeared to be contrary to the Memorandum of Understanding which was developed between the Department of Treasury's Bureau of Alcohol, Tobacco and Firearms (BATF) and MESA.

While the Memorandum encourages the development of uniform standards and delegates BATF inspection responsibility in mines to MSHA, the Memorandum also acknowledges the distinctly different statutory responsibilities and purposes of the two agencies.[5] Although MSHA is very much interested in avoiding the possibility of conflict among federal regulations, its primary concern remains the safety of the miners and the use of explosives within the mining industry. By adopting the DOT definition as its final rule, MSHA believes that these goals have been further advanced while bringing the various general definitions into closer harmony.

Blasting cap. The definition for the term blasting cap has been revised. Blasting cap is defined as a detonator which is initiated by a safety fuse, and is to be distinguished from electric blasting cap which is detonated by laying out lead wires and closing the blasting circuit.

Blasting circuit. The term blasting circuit has been revised and now means the electrical circuit used to fire one or more electric blasting caps. The revised definition provides technical accuracy and consistent terminology by deleting the phrases "to ignite an igniter cord by means of an electric starter" and "electric detonators" since blasting circuit refers only to the detonation of electric blasting caps.

Booster. A revised definition for the term booster has been added, meaning any unit of explosive or blasting agent which is used to perpetuate or intensify the initial detonation.

Objections were raised to the proposed definition for booster which restricted its location of use to a charged hole. For example, in operations which employ secondary blasting, bulk explosives are placed directly against rock and not into a charged hole. The final rule is in accord with these objections since the proposed definition for charged hole has been withdrawn.

Previously, booster had not been defined in MSHA's regulations as a separate term, but 30 CFR 55/56/57.2 "Definitions" contained a combined definition for "primer or booster." However, there is a distinction between booster and primer: primer initiates a charge, while a booster merely contributes to initiation. The combined term has now been deleted, and the new definitions for booster and primer substituted.

Capped fuse. The definition for the term capped fuse has been revised to mean a length of safety fuse to which a blasting cap has been attached.

Charged hole. The proposal would have defined a charged hole as any hole containing explosives or blasting agents

[3] On March 28, 1979, 44 FR 18630 (corrected April 2, 1979, 44 FR 19181), the Office of the Federal Register amended its regulations (1 CFR 51.13) concerning approval of incorporation by reference in the Code of Federal Regulations. Approvals for such incorporations by reference appearing in Title 30, CFR Parts 55, 56 and 57 are withdrawn effective July 1, 1980. MSHA is currently reviewing its regulations containing incorporated reference material, and intends to take whatever action may be necessary and appropriate to comply with the newly amended Federal Register procedure.

[4] During the hearing before the Administrative Law Judge, evidence was presented acknowledging DOT's intention to develop a definition for blasting agent. In promulgating this final rule, the Secretary of Labor has taken note of the DOT's public proceedings (41 FR 52083, November 26, 1976; 42 FR 43416, August 29, 1977; 43 FR 57902, December 11, 1978; and 44 FR 31180, May 31, 1979), the similarity of the participating parties, the impact on mine operations, and the harmony of purpose of the actions by the respective agencies regarding safety and health.

[5] The agreement (dated February 12, 1971) while remaining in effect is currently being revised by BATF and MSHA, as the successor agency to MESA.

with a primer. Exceptions which addressed the proposed language stated that the definition was too broad to serve any useful purpose. Other exceptions and comments suggested that implementation of this definition would diminish the protection afforded miners. All comments addressed the need for a more precise definition for charged hole to address the hazard of premature detonation. Evidence at the hearing showed that the hazard of premature detonation of blast holes containing explosives and a detonating cord is significantly less than for a blast hole containing explosives and an electric blasting cap. MSHA has withdrawn this proposal for further study.

Detonator. The term detonator has been revised to mean any device containing a detonating charge that is used to initiate an explosive. The definition includes, but is not limited to, blasting caps, electric blasting caps and non-electric instantaneous or delay blasting caps. The definition provides for the automatic inclusion of new detonators as they are developed.

Detonating cord. The term detonating cord, has been revised to mean a flexible cord containing a solid core of high explosives. The former definition uniformily defined both detonating cord and detonating fuse. The deletion of the term detonating fuse from the existing definition and the revised definition for safety fuse facilitates uniform terminology and avoids confusion between the terms detonating cord and safety fuse.

An exception to the recommended decision objected to the phrase "containing a solid core of high explosives" since the core consists of a powder rather than a solid. In this instance the word "solid" refers to a compacted continuous core of explosive powder, and not a rigid mass of explosive which forms a solid. It is also used to distinguish detonating cord from other material such as "shock tubing", a flexible tubing with a thin layer of explosive adhering to the inner wall. Therefore, the language as recommended by the Administrative Law Judge has been adopted.

Electric blasting cap. The definition of electric blasting cap has been revised. The term electric blasting cap is defined as a detonator designed for and capable of being initiated by an electric current. The revised definition changes the existing definition by substituting the term detonator for blasting cap. This change is consistent with the revised definition for detonator which includes but is not limited to blasting caps, electric blasting caps and non-electric instantaneous or delay blasting caps. Moreover, evidence presented at the hearing indicated that electric blasting caps are more prone to premature ignition than are blasting caps.

Neither this definition nor the definition for blasting cap includes the exploding bridge wire detonator, since this device is more stable and less susceptible to premature detonation by stray current or static electricity than either a blasting cap or an electric blasting cap. MSHA is currently studying the technology of exploding bridge wires and the need for developing standards on this subject.

Explosive. The recommended definition for explosive which was stipulated at the hearing has been modified to delete unnecessary words and phrases and update the incorporated reference.[6] However, the recommended definition and the final version both define explosive as any substance classified as an explosive in DOT regulations, 49 CFR 173.53, 173.88 and 173.100.

In adopting DOT's regulatory classification for both explosive and blasting agent, MSHA will enable the mining industry, which accounts for over three-fourths of the Nation's commercial use of explosives, to use a uniform system of classifying explosive materials according to their hazards.

Magazine. A new definition for the term magazine has been added which makes clear that any facility actually used for the storage of explosives, blasting agents, or detonators is considered a magazine.

Primer. The recommended definition for primer is modified. The modification adopts the Judge's decision, but deletes paragraph (b) which stated that a device containing a detonating cord becomes a primer when a detonator is attached at the time of use. The final rule now defines a primer as ". . . a unit, package, or cartridge of explosives used to initiate other explosives or blasting agents, and which contains a detonator." This change reflects evidence on the record which stated that a unit of explosive to which detonating cord is attached is no more senstive to premature detonation than is the unit of explosive itself. However, when a detonator is attached, the device is termed a primer since the hazard of premature detonation is increased.

The modified definition, in conjunction with standards 30 CFR 55/56/57.6–97, require that a detonator be attached to a unit of explosive (to make a primer) only at the time of use and close to the blasting area. However, a unit of explosive containing only detonating cord may be assembled without the time and place restrictions applicable to primers. MSHA concurs with commenters that this practice will not impose additional risks to miners, but will allow the use of such devices as "cast primers".

Table of Recommended Separation Distances of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents. The proposed definition for "Table of Recommended Separation Distances of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents" is withdrawn. The technical accuracy of the Table with respect to newly formulated blasting agents and its applicability to metal and nonmetal mines is being studied by the agency. In the interim, similar protection is provided by interagency agreement between MSHA and the BATF whereby MSHA performs inspections for BATF, using that agency's explosive materials storage requirements.

Water gel or Slurry (as applied to blasting). A new definition for water gel and slurry (as applied to blasting) was added to mean an explosive or blasting agent which contains substantial portions of water and other ingredients. A cross reference appears for the term slurry since the terms slurry and water gel are synonymous for the purposes of this regulation.

Mandatory Standards

55/56/57.6–6. Mandatory standards 30 CFR 55/56/57.6–6, applicable to the surface and underground in Part 57, are revised and renumbered 55/56/57.6–250. The stipulated standards require that smoking and open flames (except for suitable devices for igniting safety fuse or approved heating devices) must not be placed within 50 feet of explosives, blasting agents or detonators as measured by the line of sight. If the explosive materials are separated from the prohibited devices by permanent noncombustible barriers (in underground active workings), the

[6] During the public hearing, the parties and the Administrative Law Judge considered the incorporation by reference of the 1975 publication of Title 49 CFR sections 173.53, 173.88, and 173.100 within the definitions for blasting agent and explosive. Subsequently, amendments were made by the Secretary of Transportation to sections 173.53(f) and (t)(2), 173.88(e)(2)(ii), and 173.100 (m) and (p). These changes were either editorial or did not significantly change application of these sections to metal and nonmetal mining. In addition, other changes not of direct significance to mining activities were made on October 19, 1978. In section 173.53 paragraph (b) the reference to "§ 173.51(d)" was changed to read "§ 173.51(a)(3)", and in paragraph (h)(1) Note 4, the address of the Bureau of Explosives was changed.

relevant distance is reduced to 25 feet. The revised language requires that all explosive materials, whether or not in storage, be subject to the standard, adds the term blasting agents, allows for approved ignition and heating devices, increases the prohibited distance to 50 feet, and provides for lesser distances when permanent noncombustible barriers separate the subject activities in active underground workings.

55/56/57.6–7. Advisory standards 30 CFR 55/56/57.6–7, applicable to both surface and underground in Part 57, have been revised and made mandatory. The final standards provide that explosives, detonators and related materials such as safety fuse and detonating cord be: (1) stored in a manner to facilitate use of oldest stocks first; (2) stored according to brand and grade to facilitate identification; (3) stored with the top side up; and (4) stacked in a stable manner but not more than 8 feet high. Stipulated modifications of the proposed rule will limit deterioration of explosive material by using oldest stocks first, and prevent damage to, or spillage of, explosive material caused by crushing or toppling.

55/56/57.6–11. Mandatory standards 30 CFR 55/56/57.6–11, applicable to both surface and underground in Part 57, have been added. The stipulated standards provide that stored explosives, blasting agents, and detonators be in closed containers. The word "securely" was deleted from the phrase "securely closed while being stored" and the term "blasting agents" was inserted following the word "explosives" in the proposal to clarify that those materials are to be stored separately. An exception filed to the recommended decision stated that these standards could be burdensome if they require that partially used "boxes, rolls, etc." must be resealed. The requirements that containers must be closed while being stored means that lids are on, bags are tied, and boxes and cartons are closed. The standards do not require resealing of the containers. The recommendation of the Administrative Law Judge, therefore, is adopted as a final rule.

55/56/57.6–48. Advisory standards 30 CFR 55/56/57.6–48, applicable to both surface and underground in Part 57, are revised and made mandatory. The stipulated standards require that explosives and blasting agents be transported without undue delay, and over routes and at times which would expose a minimum number of persons to potential hazards. No distinction is made between explosives and blasting agents because, if detonated the hazards are similar. The standards will serve to protect not only miners, but other persons who could be exposed to danger when explosives and blasting agents are transported on mine property.

55/56/57.6–92. Mandatory standards 30 CFR 55/56/57.6–92, applicable to both surface and underground in Part 57, have been revised. The stipulated standards require that damaged or deteriorated explosives and blasting agents must be destroyed in a safe manner according to the recommendations of the manufacturers or their designated agents. Since the handling and disposal of damaged or deteriorated explosives and blasting agents are dangerous, and the use of damaged explosive materials can cause misfires, correct and immediate methods of disposal are essential. Rapid advances in technology and the increasing number and diversity of explosives make it imperative that manufacturers be consulted for information relative to the correct disposal of explosive materials.

55/56/57.6–97. Mandatory standards 30 CFR 55/56/57.6–97, applicable to both surface and underground in Part 57, have been revised. The standards require that primers be assembled only at the time of use and as close to the blasting area as conditions allow. Since "charging" is not a term uniformly defined, it was replaced by the word "use". The standards are in accordance with 30 CFR 55/56/57.6–40 which require that explosives and detonators be transported in separate vehicles unless the explosives and detonators are separated by a least four inches of hardwood or the equivalent.

55/56/57.6–98. Advisory standards 30 CFR 55/56/57.6–98, applicable to surface and underground in Part 57, are revised and made mandatory. The standards require that detonating cord and detonators be securely embedded within explosives and primers, respectively. Primers which contain a detonator must have the detonator contained securely and completely within the explosive or within a suitable tunnel or cap well. If detonating cord is used to initiate another explosive, the detonating cord must be threaded through, attached securely to, or otherwise in intimate contact with the explosive. These mandatory standards recognize new technology in the application of explosive products without compromising the safety of miners.

55/56/57.6–101. Mandatory standards 30 CFR 55/56/57.6–101, applicable to surface and underground in Part 57, have been revised. The standards provide that tamping (applying pressure to the cartridge of explosive with a wooden rod to tightly pack the explosive in the hole) must not be done directly on a primer. These mandatory standards will prevent misfires or accidental detonation which could result from tamping a primer.

55/56/57.6–106. Advisory standards 30 CFR 55/56/57.6–106, applicable to surface and underground in Part 57, have been revised and made mandatory. The standards require that faces and muck piles must be examined by a competent person for undetonated explosives or blasting agents. Any undetonated explosives or blasting agents found must be disposed of safely. The stipulated standards changed the proposed standards as follows: (1) the term "blasting agents" was added; (2) a "competent person" (defined in 30 CFR 55/56/57.2) now is required to examine for undetonated explosives or blasting agents; and (3) the phrase "after each blast" was deleted. The standards are intended to prevent the detonation of misfired explosives and blasting agents during mucking operations.

55/56/57.6–109. Advisory standards 30 CFR 55/56/57.6–109, applicable to surface and underground in Part 57, are made mandatory, and revised to combine the similar requirements for detonating cord under advisory standards 55/56/57.6–167. Standards 55/56/57.6–167 are revoked. Standards 55/56/57.6–109, promulgated as proposed, prohibit the use of safety fuse, igniter cord and detonating cord that have been kinked, bent sharply or otherwise damaged. These standards will reduce misfires resulting from defective safety fuse, igniter cord and detonating cord.

55/56/57.6–115. Mandatory standards 30 CFR 55/56/57.6–166 are renumbered 55/56/57.6–115, and made applicable to both surface and underground in Part 57. These standards also were not subject to a public hearing. The change expands this standard, which pertains to detonating cord knots, from surface only to all underground blasting operations.

55/56/57.6–118. Advisory standards 30 CFR 55/56/57.6–118, applicable to surface and underground in Part 57, have been revised and made mandatory. If fly rock may damage unlit or burning safety fuses, the stipulated standards require that the timing of the blast assures that each safety fuse is burning within its hole before any hole detonates. These standards minimize severing of fuses by flying material. The insertion of the phrase, "where fly rock might damage unlit or burning fuses," eliminates the timing requirement for blast configurations where fly rock could not damage unlit or burning fuses.

55/56/57.6–121. Advisory standards 30 CFR 55/56/57.6–121, applicable to surface and underground in Part 57, are revised and made mandatory. The stipulated standards distinguish between surface and underground electrical blasting. They require that when blasting electrically in surface operations, a blasting galvanometer or other similar testing apparatus must be used to test for: continuity of each electric blasting cap in the borehole prior to the addition of stemming; resistance of individual or multiple balanced series which are to be connected in parallel prior to their connection to the blasting line; continuity of blasting lines prior to the connection of electric blasting cap series; and total blasting circuit resistance prior to connection to the power source. In underground operations such devices shall be used to test for continuity of each electric blasting cap series, and continuity of blasting lines prior to the connection of electric blasting caps.

These standards reflect the distinctions that exist between surface and underground electrical blasting methods. Safety is improved by also limiting the devices acceptable for making certain continuity and resistance measurements. When stemming is utilized in blast holes on the surface, each blasting cap must be tested prior to the addition of stemming. In underground operations, stemming is usually not utilized. Therefore, testing of individual electric blasting caps is not required and testing of the electric blasting cap series is sufficient. As on the surface, testing for continuity of each blasting line prior to the connection of electric blasting caps is required.

55/56/57.6–126. Mandatory standards 30 CFR 55/56/57.6–170 are revised, renumbered 55/56/57.6–126, and made applicable to both surface and underground operations in Part 57. The stipulated standards provide that electric power distribution circuits must be de-energized within 50 feet of boreholes containing electric blasting caps which can be initiated by conventional power sources or extraneous electricity. However, circuits between 25 and 50 feet away from boreholes containing electric blasting caps need not be de-energized if stray current tests (conducted as frequently as necessary at the location of the electric blasting cap) measure a maximum stray current of less than 0.05 amperes through a 1-ohm resistor.

The standards will prevent premature detonation of electric blasting caps by stray current or static electricity. Also, electric power distribution circuits within 50 feet of boreholes which contain exploding bridge wire detonators need not be de-energized since they are not initiated by conventional power sources. Moreover, energized circuits that are located more than 25 feet from blastholes that provide power for essential operations such as lighting, need not be de-energized if tests measure a stray current of less than 0.05 amperes through a 1-ohm resistor.

55/56/57.6–132. Advisory standards 30 CFR 55/56/57.6–132 are revised and made mandatory. These standards were not subject to a public hearing. They are promulgated as proposed, and require delay connectors to be treated and handled with the same safety precautions as detonators. The proposals deleted the phrase "for firing detonating cord" from the advisory standard because it was redundant. Also, the term "detonator" was substituted for "blasting caps and electric detonators" since the new definition for detonator includes both blasting caps and electric detonators.

55/56/57.6–138. Advisory standards 30 CFR 55/56/57.6–169 are revised and made mandatory. They have been renumbered 55/56/57.6–138, and made applicable to surface and underground in Part 57. The stipulated standards provide that explosives or blasting agents must not be loaded into drilled or sprung holes if premature detonation from heat could result. By eliminating the word "hothole" contained in the advisory standard and revising the language the standard has been clarified. The mandatory standards are expanded to underground operations because premature detonation can occur whenever explosives or blasting agents contact heat.

55/56/57.6–139. Advisory standards 30 CFR 55/56/57.6–176 are revised and made mandatory. They also have been renumbered 55/56/57.6–138, and made applicable to surface and underground in Part 57.

The stipulated standards provide that after firing, blasting areas must not be re-entered until concentrations of smoke, dust, and fumes are below the limits allowed by 30 CFR 55/56/57.5–1 and measured according to 30 CFR 55/56/57.5–2.

These standards will prevent injuries by prohibiting premature entrance into blast areas. The hazardous conditions that can be obscured by smoke, dust and fumes if a miner prematurely enters a blast area include roof or wall hazards, falling rock, unexploded blasting materials, and stumbling hazards such as broken rock or timbers.

The reference in the proposal to standard 55/56/57.5–1 is expanded to include 55/56/57.5–2. Mandatory standard 55/56/57.5–1 sets the threshold values for exposures to airborne contaminants (permissible exposure levels), while mandatory standard 55/56/57.5–2 requires that air quality must be tested "as frequently as necessary to determine the adequacy of control measures." A visual examination must be conducted after each blast and air quality tests conducted whenever re-entry would expose miners to potentially dangerous conditions.

55/56/57.6–140. Advisory standards 30 CFR 55/56/57.6–180 have been revised and made mandatory. They have been renumbered 55/56/57.6–140, and made applicable to the surface and underground in Part 57.

The stipulated standards provide that all blasting circuits, and electric blasting caps which may be initiated by conventional power sources, must be protected from sources of extraneous electricity. These standards will reduce the possibility of premature detonation due to stray currents and static electricity.

Drafting Information

The principal persons responsible for drafting this rulemaking document are: Bernard R. McGuire and Mitchell M. Eskenazi, Attorney Advisors, Division of Mine Safety and Health, Office of the Solicitor, Department of Labor; and Herbert P. Levan, Office of Standards Regulations and Variances, MSHA.

Regulatory Analysis

It has been determined that this document does not contain a major proposal requiring the preparation of a regulatory analysis under Executive Order No. 12044, or the Department of Labor's final guidelines for implementation of the Executive Order (44 FR 5570, January 26, 1979).

It is estimated that the total cost of compliance with the standards contained in this rule for all metal and nonmetal mines will be approximately 1.5 million dollars during the first year.

Dated: August 8, 1979.

Robert B. Lagather,

Assistant Secretary for Mine Safety and Health.

PART 55—HEALTH AND SAFETY STANDARDS—METAL AND NONMETAL OPEN PIT MINES

Part 55, Subchapter N, Chapter I, Title 30, Code of Federal Regulations is amended and revised as follows:

§ 55.2 [Amended]

A. Section 55.2 "Definitions" is amended as follows:

1. Definitions for the terms blasting agent, blasting cap, blasting circuit, capped fuse, detonator, detonating cord, electric blasting cap, explosive, and safety fuse are revised as follows:

"Blasting agent" means any substance classified as a blasting agent by the Department of Transportation in 49 CFR § 173.114a (44 FR 31182, May 31, 1979) which is incorporated by reference. This document is available for inspection at each Metal and Nonmetal Safety and Health Subdistrict Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402.

* * * * *

"Blasting cap" means a detonator which is initiated by a safety fuse.

"Blasting circuit" means the electrical circuit used to fire one or more electric blasting caps.

"Capped fuse" means a length of safety fuse to which a blasting cap has been attached.

* * * * *

"Detonating cord" means a flexible cord containing a solid core of high explosives.

"Detonator" means any device containing a detonating charge that is used to initiate an explosive and includes but is not limited to blasting caps, electric blasting caps and non-electric instantaneous or delay blasting caps.

* * * * *

"Electric blasting cap" means a detonator designed for and capable of being initiated by means of an electric current.

* * * * *

"Explosive" means any substance classified as an explosive by the Department of Transportation in 49 CFR 173.53, 173.88 and 173.100 which are incorporated by reference. Title 49 CFR is available for inspection at each Metal and Nonmetal Safety and Health Subdistrict Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402.

* * * * *

"Safety fuse" means a flexible cord containing an internal burning medium by which fire is conveyed at a continuous and uniform rate for the purpose of firing blasting caps or a black powder charge.

2. New definitions for the terms delay connector, magazine, non-electric delay blasting cap, and water gel or slurry are added as follows:

"Delay connector" means a non-electric short interval delay device for use in delaying blasts which are initiated by detonating cord.

* * * * *

"Magazine" means a facility for the storage of explosives, blasting agents, or detonators.

* * * * *

"Non-electric delay blasting cap" means a detonator with an integral delay element and capable of being initiated by miniaturized detonating cord.

* * * * *

"Slurry" (as applied to blasting). See "Water gel."

* * * * *

"Water gel" or "Slurry" (as applied to blasting) means an explosive or blasting agent containing substantial portions of water.

3. The definition for "Primer or Booster" is revised to read as follows:

"Booster" means any unit of explosive or blasting agent used for the purpose of perpetuating or intensifying an initial detonation.

"Primer" means a unit, package, or cartridge of explosives used to initiate other explosives or blasting agents, and which contains a detonator.

(Sec. 301(c)(3), Pub. L. 95–164, 91 Stat. 1318 (30 U.S.C. 961(c)(3)).)

§ 55.6 [Amended]

Section 55.6 "Explosives" is amended as follows:

1. New standard numbers are added and reserved as follows:

55.6–221 through 55.6–249 [Reserved]

2. A new center heading entitled "Miscellaneous" is added immediately below the standard number 55.6–249.

3. Mandatory standard 55.6–6 is renumbered 55.6–250 and revised as follows:

55.6–250 *Mandatory.* Smoking and open flames, except for the use of suitable devices for igniting safety fuse or the use of approved heating devices, shall not be permitted within 50 feet as measured by the line of sight of explosives, blasting agents; or detonators or within 25 feet when out of line of sight and separated by permanent noncombustible barriers in underground active workings.

4. Standard number 55.6–6 is reserved as follows:

55.6–6 [Reserved]

5. Advisory standard 55.6–7 is made mandatory and revised as follows:

55.6–7 *Mandatory.* Explosives, detonators, and related materials such as safety fuse and detonating cord shall be:

(a) Stored in a manner to facilitate use of oldest stocks first.

(b) Stored according to brand and grade in such a manner as to facilitate identification.

(c) Stored with their top sides up.

(d) Stacked in a stable manner but not more than eight (8) feet high.

6. Advisory standards 55.6–9 and 55.6–10 are revoked, and standard numbers 55.6–9 and 55.6–10 are reserved as follows:

55.6–9 [Reserved]

55.6–10 [Reserved]

7. New mandatory standard 55.6–11 is added as follows:

55.6–11 *Mandatory.* Containers of explosives, blasting agents, and detonators shall be closed while being stored.

8. Advisory standard 55.6–48 is revised and made mandatory as follows:

55.6–48 *Mandatory.* Explosives and blasting agents shall be transported without undue delay, and over routes and at times that expose a minimum number of persons.

9. Mandatory standard 55.6–52 is revoked, and standard number 55.6–52 is reserved as follows:

55.6–52 [Reserved]

10. Advisory standard 55.6–55 is revoked, and standard number 55.6–55 is reserved as follows:

55.6–55 [Reserved]

11. Mandatory standard 55.6–92 is revised as follows:

55.6–92 *Mandatory.* Damaged or deteriorated explosives and blasting agents shall be destroyed in a safe manner under the instructions of the explosives or blasting agent manufacturer or its designated agent.

12. Mandatory standard 55.6–95 is revoked, and standard number 55.6–95 is reserved as follows:

55.6–95 [Reserved]

13. Mandatory standard 55.6–97 is revised as follows:

55.6–97 *Mandatory.* Primers shall be made up only at the time of use and as close to the blasting area as conditions allow.

14. Advisory standard 55.6–98 is revised and made mandatory as follows:

55.6–98 *Mandatory.*

(a) Primers containing a detonator shall be prepared with the detonator contained securely and completely within the explosive charge or within a suitable tunnel or cap well.

(b) When using detonating cord to initiate another explosive, a connection shall be prepared with the detonating cord threaded through, attached securely to, or otherwise in intimate contact with the explosive charge.

15. Mandatory standard 55.6–101 is revised as follows:

55.6–101 *Mandatory.* Tamping shall not be done directly on a primer.

16. Advisory standard 55.6–106 is revised and made mandatory as follows:

55.6-106 *Mandatory.* Faces and muck piles shall be examined by a competent person for undetonated explosives or blasting agents and any undetonated explosives or blasting agents found shall be disposed of safely.

17. Advisory standard 55.6-109 is revised and made mandatory as follows:

55.6-109 *Mandatory.* Safety fuse, igniter cord, and detonating cord shall not be used if they have been kinked, bent sharply, or otherwise damaged.

18. Mandatory standard 55.6-166 is made applicable to surface and underground and renumbered as follows:

55.6-115 *Mandatory.* All detonating cord knots shall be tight and all connections shall be kept at right angles to the trunklines.

19. Advisory standard 55.6-118 is revised and made mandatory as follows:

55.6-118 *Mandatory.* When using safety fuse, where fly rock might damage unlit or burning fuses, timing shall be such that all fuses are burning within the holes before any hole detonates.

20. Advisory standard 55.6-121 is revised and made mandatory as follows:

55.6-121 *Mandatory.* When blasting electrically a blasting galvanometer, or other instrument that is specifically designed for testing blasting circuits, shall be used to test:

(a) In surface operations—

(1) Continuity of each electric blasting cap in the borehole prior to the addition of stemming.

(2) Resistance of individual series or the resistance of multiple balanced series to be connected in parallel prior to their connection to the blasting line.

(3) Continuity of blasting lines prior to the connection of electric blasting cap series.

(4) Total blasting circuit resistance prior to connection to the power source.

(b) In underground operations—

(1) Continuity of each electric blasting cap series.

(2) Continuity of blasting lines prior to the connection of electric blasting caps.

21. Mandatory standard 55.6-170 is renumbered 55.6-126, and revised as follows:

55.6-126 *Mandatory.* Electric power distribution circuits shall be de-energized within 50 feet of boreholes containing electric blasting caps which can be initiated by conventional power sources or extraneous electricity except that such circuits need not be de-energized between 25 and 50 feet of such boreholes when stray current tests, conducted as frequently as necessary, measure a maximum stray current less than 0.05 amperes through a one-ohm resistor measured at the location of the electric blasting cap.

22. Advisory standard 55.6-132 is revised and made mandatory as follows:

55.6-132 *Mandatory.* Delay connectors shall be treated and handled with the same safety precautions as detonators.

23. Advisory standard 55.6-169 is renumbered 55.6-138, revised, and made mandatory as follows:

55.6-138 *Mandatory.* Explosives or blasting agents shall not be loaded into drilled or sprung holes that could result in premature detonation from heat.

24. Advisory standard 55.6-176 is renumbered 55.6-139, revised, and made mandatory as follows:

55.6-139 *Mandatory.* Blasting areas shall not be re-entered after firing until concentrations of smoke, dust, and fumes have been reduced to safe limits as required in, and determined by, mandatory standards 55.5-1 and 55.5-2, respectively.

25. Advisory standard 55.6-180 is renumbered 55.6-140, revised, and made mandatory as follows:

55.6-140 *Mandatory.* Blasting circuits and electric blasting caps (which are capable of being initiated by conventional power sources) shall be protected from sources of extraneous electricity.

26. Standard number 55.6-166 is reserved as follows:

55.6-166 [Reserved]

27. Advisory standard 55.6-167 is revoked, and standard number 55.6-167 is reserved as follows:

55.6-167 [Reserved]

(Sec. 301(c)(3), Pub. L. 95-164, 91 Stat. 1318 (30 U.S.C. 961(c)(3)))

PART 56—HEALTH AND SAFETY STANDARDS—SAND, GRAVEL, AND CRUSHED STONE OPERATIONS

Part 56, Subchapter N, Chapter I, Title 30, Code of Federal Regulations is amended and revised as follows:

§ 56.2 [Amended]

C. Section 56.2 "Definitions" is amended as follows:

1. Definitions for the terms blasting agent, blasting cap, blasting circuit, capped fuse, detonator, detonating cord, electric blasting cap, explosive, and safety fuse are revised as follows:

"Blasting agent" means any substance classified as a blasting agent by the Department of Transportation in 49 CFR § 173.114a (44 FR 31182, May 31, 1979) which is incorporated by reference. This document is available for inspection at each Metal and Nonmetal Safety and Health Subdistrict Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402.

* * * * *

"Blasting cap" means a detonator which is initiated by a safety fuse.

"Blasting circuit" means the electrical circuit used to fire one or more electric blasting caps.

"Capped fuse" means a length of safety fuse to which a blasting cap has been attached.

* * * * *

"Detonating cord" means a flexible cord containing a solid core of high explosives.

"Detonator" means any device containing a detonating charge that is used to initiate an explosive and includes but is not limited to blasting caps, electric blasting caps and non-electric instantaneous or delay blasting caps.

* * * * *

"Electric blasting cap" means a detonator designed for and capable of being initiated by means of an electric current.

* * * * *

"Explosive" means any substance classified as an explosive by the Department of Transportation in 49 CFR §§ 173.53, 173.88 and 173.100 which are incorporated by reference. Title 49 CFR is available for inspection at each Metal and Nonmetal Safety and Health Subdistrict Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402.

* * * * *

"Safety fuse" means a flexible cord containing an internal burning medium by which fire is conveyed at a continuous and uniform rate for the purpose of firing blasting caps or a black powder charge.

2. New definitions for the terms delay connector, magazine, non-electric delay blasting cap, and water gel or slurry are added as follows:

"Delay connector" means a non-electric short interval delay device for use in delaying blasts which are initiated by detonating cord.

* * * * *

"Magazine" means a facility for the storage of explosives, blasting agents, or detonators.

* * * * *

"Non-electric delay blasting cap" means a detonator with an integral delay element and capable of being initiated by miniaturized detonating cord.

* * * * *

"Slurry" (as applied to blasting). See "Water gel."

* * * * *

"Water gel" or "Slurry" (as applied to blasting) means an explosive or blasting agent containing substantial portions of water.

3. The definition for "Primer or Booster" is revised to read as follows:

"Booster" means any unit of explosive or blasting agent used for the purpose of perpetuating or intensifying an initial detonation.

"Primer" means a unit, package, or cartridge of explosives used to initiate other explosives or blasting agents, and which contains a detonator.

(Sec. 301(c)(3), Pub. L. 95-164, 91 Stat. 1318 (30 U.S.C. 961(c)(3)).)

§ 56.6 [Amended]

Section 56.6 "Explosives" is amended as follows:

1. New standard numbers are added and reserved as follows:

56.6–221 through 56.6–249. [Reserved]

2. A new center heading entitled "Miscellaneous" is added immediately below the standard number 56.6–249.

3. Mandatory standard 56.6–6 is renumbered 56.6–250 and revised as follows:

56.6–250 *Mandatory.* Smoking and open flames, except for the use of suitable devices for igniting safety fuse or the use of approved heating devices, shall not be permitted within 50 feet as measured by the line of sight of explosives, blasting agents, or detonators or within 25 feet when out of line of sight and separated by permanent noncombustible barriers in underground active workings.

4. Standard number 56.6–6 is reserved as follows:

56.6–6 [Reserved]

5. Advisory standard 56.6–7 is made mandatory and revised as follows:

56.6–7 *Mandatory.* Explosives, detonators, and related materials such as safety fuse and detonating cord shall be:

(a) Stored in a manner to facilitate use of oldest stocks first.

(b) Stored according to brand and grade in such a manner as to facilitate identification.

(c) Stored with their top sides up.

(d) Stacked in a stable manner but not more than eight (8) feet high.

6. Advisory standards 56.6–9 and 56.6–10 are revoked, and standard numbers 56.6–9 and 56.6–10 are reserved as follows:

56.6–9 [Reserved]
56.6–10 [Reserved]

7. New mandatory standard 56.6–11 is added as follows:

56.6–11 *Mandatory.* Containers of explosives, blasting agents, and detonators shall be closed while being stored.

8. Advisory standard 56.6–48 is revised and made mandatory as follows:

56.6–48 *Mandatory.* Explosives and blasting agents shall be transported without undue delay, and over routes and at times that expose a minimum number of persons.

9. Mandatory standard 56.6–52 is revoked, and standard number 56.6–52 is reserved as follows:

56.6–52 [Reserved]

10. Advisory standard 56.6–55 is revoked, and standard number 56.6–55 is reserved as follows:

56.6–55 [Reserved]

11. Mandatory standard 56.6–92 is revised as follows:

56.6–92 *Mandatory.* Damaged or deteriorated explosives and blasting agents shall be destroyed in a safe manner under the instructions of the explosives or blasting agent manufacturer or its designated agent.

12. Mandatory standard 56.6–95 is revoked, and standard number 56.6–95 is reserved as follows:

56.6–95 [Reserved]

13. Mandatory standard 56.6–97 is revised as follows:

56.6–97 *Mandatory.* Primers shall be made up only at the time of use and as close to the blasting area as conditions allow.

14. Advisory standard 56.6–98 is revised and made mandatory as follows:

56.6–98 *Mandatory.*

(a) Primers containing a detonator shall be prepared with the detonator contained securely and completely within the explosive charge or within a suitable tunnel or cap well.

(b) When using detonating cord to initiate another explosive, a connection shall be prepared with the detonating cord threaded through, attached securely to, or otherwise in intimate contact with the explosive charge.

15. Mandatory standard 56.6–101 is revised as follows:

56.6–101 *Mandatory.* Tamping shall not be done directly on a primer.

16. Advisory standard 56.6–106 is revised and made mandatory as follows:

56.6–106 *Mandatory.* Faces and muck piles shall be examined by a competent person for undetonated explosives or blasting agents and any undetonated explosives or blasting agents found shall be disposed of safely.

17. Advisory standard 56.6–109 is revised and made mandatory as follows:

56.6–109 *Mandatory.* Safety fuse, igniter cord, and detonating cord shall not be used if they have been kinked, bent sharply, or otherwise damged.

18. Mandatory standard 56.6–166 is made applicable to surface and underground and renumbered as follows:

56.6–115 *Mandatory.* All detonating cord knots shall be tight and all connections shall be kept at right angles to the trunklines.

19. Advisory standard 56.6–118 is revised and made mandatory as follows:

56.6–118 *Mandatory.* When using safety fuse, where fly rock might damage unlit or burning fuses, timing shall be such that all fuses are burning within the holes before any hole detonates.

20. Advisory standard 56.6–121 is revised and made mandatory as follows:

56.6–121 *Mandatory.* When blasting electrically a blasting galvanometer, or other instrument that is specifically designed for testing blasting circuits, shall be used to test:

(a) In surface operations:

(1) Continuity of each electric blasting cap in the borehole prior to the addition of stemming.

(2) Resistance of individual series or the resistance of multiple balanced series to be connected in parallel prior to their connection to the blasting line.

(3) Continuity of blasting lines prior to the connection of electric blasting cap series.

(4) Total blasting circuit resistance prior to connection to the power source.

(b) In underground operations:

(1) Continuity of each electric blasting cap series.

(2) Continuity of blasting lines prior to the connection of electric blasting caps.

21. Mandatory standard 56.6–170 is renumbered 56.6–126, and revised as follows:

56.6–126 *Mandatory.* Electric power distribution circuits shall be de-energized within 50 feet of boreholes containing electric blasting caps which can be initiated by conventional power sources or extraneous electricity except that such circuits need not be de-energized between 25 and 50 feet of such boreholes when stray current tests, conducted as frequently as necessary, measure a maximum stray current less than 0.05 amperes through a one-ohm resistor measured at the location of the electric blasting cap.

22. Advisory standard 56.6–132 is revised and made mandatory as follows:

56.6–132 *Mandatory.* Delay connectors shall be treated and handled with the same safety precautions as detonators.

23. Advisory standard 56.6–169 is renumbered 56.6–138, revised, and made mandatory as follows:

56.6–138 *Mandatory.* Explosives or blasting agents shall not be loaded into drilled or sprung holes that could result in premature detonation from heat.

24. Advisory standard 56.6–176 is renumbered 56.6–139, revised, and made mandatory as follows:

56.6–139 *Mandatory.* Blasting areas shall not be re-entered after firing until concentrations of smoke, dust, and fumes have been reduced to safe limits as required in, and determined by, mandatory standards 56.5–1 and 56.5–2, respectively.

25. Advisory standard 56.6–180 is renumbered 56.6–140, revised, and made mandatory as follows:

56.6–140 *Mandatory.* Blasting circuits and electric blasting caps (which are capable of being initiated by conventional power sources) shall be protected from sources of extraneous electricity.

26. Standard number 56.6–166 is reserved as follows:

56.6–166 [Reserved]

27. Advisory standard 56.6–167 is revoked, and standard number 56.6–167 is reserved as follows:

56.6–167 [Reserved]

(Sec. 301(c)(3), Pub. L. 95–164, 91 Stat. 1318 (30 U.S.C. 961(c)(3).)

PART 57—HEALTH AND SAFETY STANDARDS—METAL AND NONMETALLIC UNDERGROUND MINES

Part 57, Subchapter N, Chapter I, Title 30, Code of Federal Regulations is amended and revised as follows:

§ 57.2 [Amended]

E. Section 57.2 "Definitions" is amended as follows:

1. Definitions for the terms blasting agent, blasting cap, blasting circuit, capped fuse, detonator, detonating cord, electric blasting cap, explosive, and safety fuse are revised as follows:

"Blasting agent" means any substance classified as blasting agent by the Department of Transportation in 49 CFR § 173.114(a) (44 FR 31182. May 31, 1979) which is incorporated by reference. This document is available for inspection at each Metal and Nonmetal Safety and Health Subdistrict Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402.

* * * * *

"Blasting cap" means a detonator which is initiated by a safety fuse.

"Blasting circuit" means the electrical circuit used to fire one or more electric blasting caps.

"Capped fuse" means a length of safety fuse to which a blasting cap has been attached.

* * * * *

"Detonating cord" means a flexible cord containing a solid core of high explosives.

"Detonator" means any device containing a detonating charge that is used to initiate an explosive and includes but is not limited to blasting caps, electric blasting caps and non-electric instantaneous or delay blasting caps.

* * * * *

"Electric blasting cap" means a detonator designed for and capable of being initiated by means of an electric current.

* * * * *

"Explosive" means any substance classified as an explosive by the Department of Transportation in 49 CFR 173.53, 173.88 and 173.100 which are incorporated by reference. Title 49 CFR is available for inspection at each Metal and Nonmetal Safety and Health Subdistrict Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402.

* * * * *

"Safety fuse" means a flexible cord containing an internal burning medium by which fire is conveyed at a continuous and uniform rate for the purpose of firing blasting caps or a black powder charge.

2. New definitions for the terms delay connector, magazine, non-electric delay blasting cap, and water gel or slurry are added as follows:

"Delay connector" means a non-electric short interval delay device for use in delaying blasts which are initiated by detonating cord.

* * * * *

"Magazine" means a facility for the storage of explosives, blasting agents, or detonators.

* * * * *

"Non-electric delay blasting cap" means a detonator with an integral delay element and capable of being initiated by miniaturized detonating cord.

* * * * *

"Slurry" (as applied to blasting). See "Water gel."

* * * * *

"Water gel" or "Slurry" (as applied to blasting) means an explosive or blasting agent containing substantial portions of water.

3. The definition for "Primer or Booster" is revised to read as follows:

"Booster" means any unit of explosive or blasting agent used for the purpose of perpetuating or intensifying an initial detonation.

"Primer" means a unit, package, or cartridge of explosives used to initiate other explosives or blasting agents, and which contains a detonator.

(Sec. 301(c)(3), Pub. L. 95–164, 91 Stat. 1318 (30 U.S.C. 961(c)(3)).)

§ 57.6 [Amended]

Section 57.6 "Explosives" is amended as follows:

1. New standard numbers are added and reserved as follows:

57.6–221 through 57.6–249 [Reserved]

2. A new center heading entitled "Miscellaneous" is added immediately below the standard number 57.6–249.

3. Mandatory standard 57.6–6 is renumbered 57.6–250 and revised as follows:

57.6–250 *Mandatory.* Smoking and open flames, except for the use of suitable devices for igniting safety fuse or the use of approved heating devices, shall not be permitted within 50 feet as measured by the line of sight of explosives, blasting agents, or detonators or within 25 feet when out of line of sight and separated by permanent noncombustible barriers in underground active workings.

4. Standard number 57.6–6 is reserved as follows:

57.6–6 [Reserved]

5. Advisory standard 57.6–7 which is applicable to surface and underground is made mandatory and revised as follows:

57.6–7 *Mandatory.* Explosives, detonators, and related materials such as safety fuse and detonating cord shall be:

(a) Stored in a manner to facilitate use of oldest stocks first.

(b) Stored according to brand and grade in such a manner as to facilitate identification.

(c) Stored with their top sides up.

(d) Stacked in a stable manner but not more than eight (8) feet high.

6. Advisory standards 57.6–9 and 57.6–10 are revoked, and standard numbers 57.6–9 and 57.6–10 are reserved as follows:

57.6–9 [Reserved]

57.6–10 [Reserved]

7. New mandatory standard 57.6–11 which is applicable to surface and underground is added as follows:

57.6–11 *Mandatory.* Containers of explosives, blasting agents, and detonators shall be closed while being stored.

8. Advisory standard 57.6–48 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–48 *Mandatory.* Explosives and blasting agents shall be transported without undue delay, and over routes and at times that expose a minimum number of persons.

9. Mandatory standard 57.6–52 is revoked, and standard number 57.6–52 is reserved as follows:

57.6–52 [Reserved]

10. Advisory standard 57.6–55 is revoked, and standard number 57.6–55 is reserved as follows:

57.6–55 [Reserved]

11. Mandatory standard 57.6–92 which is applicable to surface and underground is revised as follows:

57.6–92 *Mandatory.* Damaged or deteriorated explosives and blasting agents shall be destroyed in a safe manner under the instructions of the explosives or blasting agent manufacturer or its designated agent.

12. Mandatory standard 57.6–95 is revoked, and standard number 57.6–95 is reserved as follows:

57.6–95 [Reserved]

13. Mandatory standard 57.6–97 which is applicable to surface and underground is revised as follows:

57.6–97 *Mandatory.* Primers shall be made up only at the time of use and as close to the blasting area as conditions allow.

14. Advisory standard 57.6–98 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–98 *Mandatory.*

(a) Primers containing a detonator shall be prepared with the detonator contained securely and completely within the explosive charge or within a suitable tunnel or cap well.

(b) When using detonating cord to initiate another explosive, a connection shall be

prepared with the detonating cord threaded through, attached securely to, or otherwise in intimate contact with the explosive charge.

15. Mandatory standard 57.6–101 which is applicable to surface and underground is revised as follows:

57.6–101 *Mandatory.* Tamping shall not be done directly on a primer.

16. Advisory standard 57.6–106 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–106 *Mandatory.* Faces and muck piles shall be examined by a competent person for undetonated explosives or blasting agents and any undetonated explosives or blasting agents found shall be disposed of safely.

17. Advisory standard 57.6–109 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–109 *Mandatory.* Safety fuse, igniter cord, and detonating cord shall not be used if they have been kinked, bent sharply, or otherwise damaged.

18. Mandatory standard 57.6–166 which is applicable to surface only is made applicable to surface and underground and renumbered as follows:

57.6–115 *Mandatory.* All detonating cord knots shall be tight and all connections shall be kept at right angles to the trunklines.

19. Advisory standard 57.6–118 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–118 *Mandatory.* When using safety fuse, where fly rock might damage unlit or burning fuses, timing shall be such that all fuses are burning within the holes before any hole detonates.

20. Advisory standard 57.6–121 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–121 *Mandatory.* When blasting electrically a blasting galvanometer, or other instrument that is specifically designed for testing blasting circuits, shall be used to test:

(a) In surface operations:

(1) Continuity of each electric blasting cap in the borehole prior to the addition of stemming.

(2) Resistance of individual series or the resistance of multiple balanced series to be connected in parallel prior to their connection to the blasting line.

(3) Continuity of blasting lines prior to the connection of electric blasting cap series.

(4) Total blasting circuit resistance prior to connection to the power source.

(b) In underground operations:

(1) Continuity of each electric blasting cap series.

(2) Continuity of blasting lines prior to the connection of electric blasting caps.

21. Mandatory standard 57.6–170 which is applicable to surface only is made applicable to surface and underground, renumbered 57.6–126, and revised as follows:

57.6–126 *Mandatory.* Electric power distribution circuits shall be de-energized within 50 feet of boreholes containing electric blasting caps which can be initiated by conventional power sources or extraneous electricity except that such circuits need not be de-energized between 25 and 50 feet of such boreholes when stray current tests, conducted as frequently as necessary, measure a maximum stray current less than 0.05 amperes through a one-ohm resistor measured at the location of the electric blasting cap.

22. Advisory standard 57.6–132 which is applicable to surface and underground is revised and made mandatory as follows:

57.6–132 *Mandatory.* Delay connectors shall be treated and handled with the same safety precautions as detonators.

23. Advisory standard 57.6–169 which is applicable to surface only is made applicable to surface and underground, renumbered 57.6–138, revised, and made mandatory as follows.

57.6–138 *Mandatory.* Explosives or blasting agents shall not be loaded into drilled or sprung holes that could result in premature detonation from heat.

24. Advisory standard 57.6–176 which is applicable to underground only is made applicable to surface and underground, renumbered 57.6–139, revised, and made mandatory as follows:

57.6–139 *Mandatory.* Blasting areas shall not be reentered after firing until concentrations of smoke, dust, and fumes have been reduced to safe limits as required in, and determined by, Mandatory Standards 57.5–1 and 57.5–2 respectively.

25. Advisory standard 57.6–180 which is applicable to underground only is made applicable to surface and underground, renumbered 57.6–140, revised, and made mandatory as follows:

57.6–140 *Mandatory.* Blasting circuits and electric blasting caps (which are capable of being initiated by conventional power sources) shall be protected from sources of extraneous electricity.

26. Standard number 57.6–166 is reserved as follows:

57.6–166 [Reserved]

27. Advisory standard 57.6–167 is revoked, and standard number 57.6–167 is reserved as follows:

57.6–167 [Reserved]

(Sec. 301(c)(3), Pub. L. 95–164, 91 Stat. 1318 (30 U.S.C. 961(c)(3))

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